Instruction
Manual

SPE TOP LINE FLEX

Precision Row Crop Planter

BALDAN

PRESENTATION

We 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

SPE TOP LINE FLEX

Precision Row Crop Planter

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.
CNPJ: 52.311.347/0009-06
Insc. Est.: 441.016.953.110

Scan the QR Code on the identification plate of your device and access this Instruction Manual online.

BALDAN

INDEX

INDEX

INDEX

PRODUCT WARRANTY

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, guarantees the normal operation of the implement to the dealer for a period of 6 (six) months from the date of delivery on the resale invoice to the first final consumer.

During this period, **BALDAN** commits itself to repair material and / or manufacturing defects under its responsibility, with labor, freight and other expenses incurred by the dealer.

During the warranty period, the request and replacement of any defective parts must be made to the dealer in the region, who will send the defective part for analysis to **BALDAN**.

When such a procedure is not possible and the reseller has no capacity for resolution, he will request support from **BALDAN** Technical Assistance, using a specific form distributed to resellers.

After analyzing the replaced items by **BALDAN** Technical Assistance, and concluding that, this is not a guarantee, then the reseller will be responsible for the costs related to the replacement; as well as material, travel expenses including accommodation and meals, accessories, used lubricant and other expenses arising from the call for Technical Assistance, **BALDAN** being authorized to make the respective billing in the name of the resale.

Any repairs made to the product that are within the warranty period by the dealer will only be authorized by **BALDAN** upon presentation of a budget describing parts and labor to be performed.

Excluded from this term is the product that undergoes repairs or modifications to officers who do not belong to the BALDAN dealer network, as well as the application of non-genuine parts or components to the user's product.

This warranty will become void when it is found that the defect or damage is the result of improper use of the product, failure to follow instructions or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardans, hydraulic components, etc., which are equipment guaranteed by their manufacturers.

Defects in manufacturing and or material, which are the subject of this warranty term, will not, under any circumstances, constitute grounds for termination of the purchase and sale contract, or for indemnity of any nature.

BALDAN reserves the right to change and or improve the technical characteristics of its products, without prior notice, and without obligation to do so with previously manufactured products.

WARRANTY

GENERAL INFORMATION

OWNER

BALDAN IMPLEMENTOS AGRÍCOLAS S/A is not responsible for any damaged caused by accident due to usage, transportation, or in the improper or incorrect transportation of its implement, whether by negligence and/or inexperience of any person.

Only people with complete knowledge of the tractor and the implement should carry their transportation and operation.

BALDAN is not responsible for any damaged caused in unpredictable or unrelated situations to the normal use of the implement.

Incorrect handling of this equipment can result in serious or fatal accidents. Before putting the equipment into operation, carefully read the instructions contained in this manual. Make sure that the person responsible for the operation is instructed in the correct and safe handling. Also make sure that the operator has read and understood the product instruction manual.

NR-31 - SAFETY AND HEALTH AT WORK IN AGRICULTURE, LIVESTOCK FORESTRY, FOREST EXPLORATION AND AQUACULTURE.

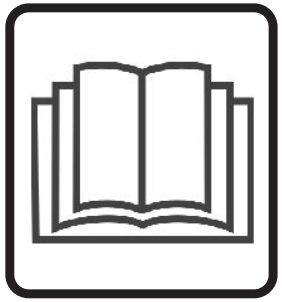
This Regulatory Standard aims to establish the precepts to be observed in the organization and in the work environment, in a manner compatible with the planning and development of agriculture, livestock, forestry, forestry and aquaculture activities with the safety and health and environment of the job.

MR. OWNER OR OPERATOR OF THE EQUIPMENT.
Read and carefully comply with provisions of NR-31.

For more information, see the website and read the full NR-31.
http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm

THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ATTENTIVE AS TO THE POSSIBILITY OF PERSONAL ACCIDENTS.

ATTENTION



• Read the instruction manual carefully for recommended safety practices.

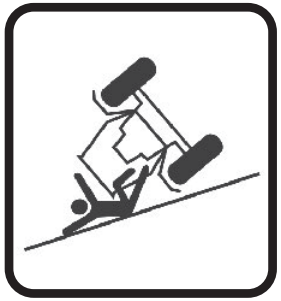
ATTENTION

• Only start operating the tractor when it is properly accommodated and with the seat belt fastened.

ATTENTION

• Do not work with the tractor if the front is light. If there is a tendency to lift, add weights or ballast to the front or front wheels.

ATTENTION



• There is a risk of s erious injury from tipping over when working on slopes.

• Do not use excessive speed.

ATTENTION

• Do not transport people on the tractor or equipment.

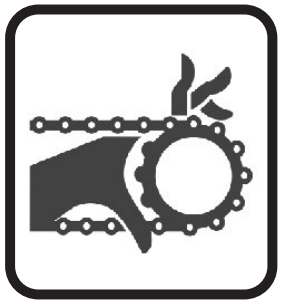
ATTENTION

• Before performing any maintenance on your equipment, make sure that it is properly stopped. Avoid getting hit.

SAFETY RULES

SAFETY RULES

⚠ ATTENTION



- Do not operate the seeder if the transmission protections are not properly fixed.
- Only remove the guards to change gears, replace them immediately.
- When doing any work on the seeder transmission, disable the ratchets.
- Do not make adjustments with the seeder in motion.

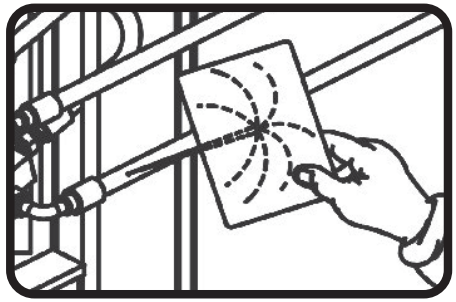
⚠ ATTENTION

- Hydraulic oil works under pressure and can cause serious injury if there are leaks. Periodically check the condition of the hoses. If there is evidence of leakage, replace it immediately.
- Before connecting or disconnecting the hydraulic hoses, relieve the system pressure by activating the command with the tractor off.

⚠ ATTENTION

- Always stay away from the active elements of the seeder (discs), they are sharp and can cause accidents.
- When carrying out any work on the discs, wear safety gloves in your hands.

⚠ ATTENTION



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

⚠ *THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE CAREFUL AS TO THE POSSIBILITY OF PERSONAL ACCIDENTS.*

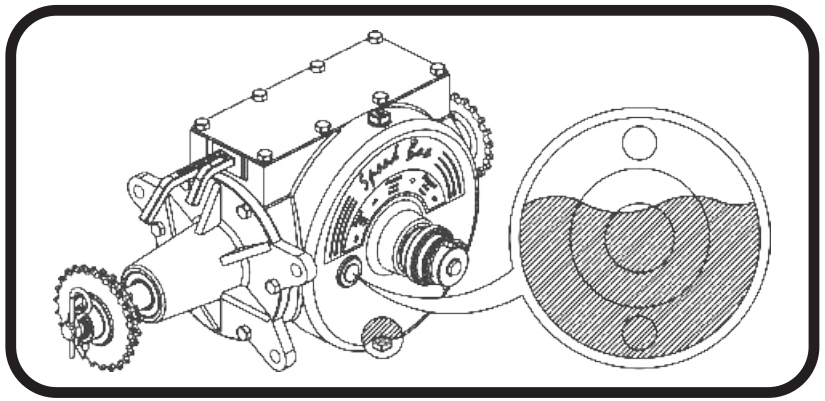
ATTENTION

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

ATTENTION

- When operating the seed drill, do not allow the permanence of people on the machine.
- Do not stay on the platforms with the machine in motion.

ATTENTION



- Check the oil level daily.
- Replace the oil in the gearbox (Speed Box) after the first 30 hours of work, then every 1500 hours, always using ISO VG 150 mineral oil at 40°C (amount of oil used 1.8 liters).
- Use only factory original fuel, because only this one has controlled hardness.

THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ATTENTIVE AS TO THE POSSIBILITY OF PERSONAL ACCIDENTS.

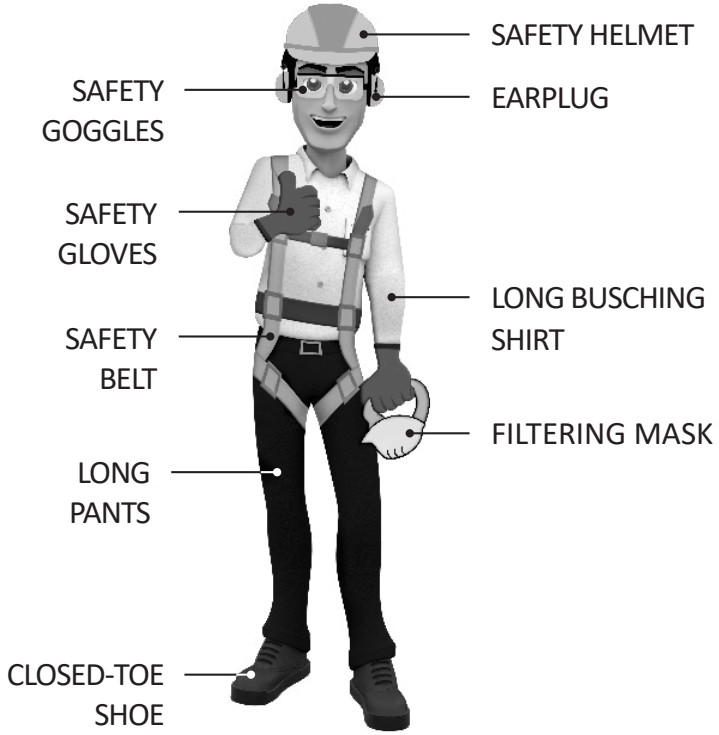
SAFETY RULES

SAFETY RULES

PPE EQUIPAMENT

ATTENTION | ***DO NOT WORK WITH THE SEEDER WITHOUT FIRST WEARING PPES (SAFETY EQUIPMENT). IGNORING THIS WARNING MAY CAUSE DAMAGES TO HEALTH, SEVERE ACCIDENTS OR DEATH.***

When performing certain procedures with the **SPE TOP LINE FLEX**, wear the following Safety Equipament (PPE):



NOTE

All PPEs (Safety Equipment) must have an authenticity certificate.

IMPORTANT

The safety practice must be performed in all stages of working with the seeder, thus avoiding accidents such as impact of objects, fall, noise, cuts and ergonomics, ie the person responsible for operating the seeder is subject to internal and external damage to your body.

01 - ⚠ When operating the equipment, do not allow people to remain too close or on top of it.

02 - ⚠ When carrying out any assembly and disassembly service on the disks, use gloves in your hands.

03 - ⚠ Do not wear loose clothing, as they may get caught in the equipment.

04 - ⚠ When starting the tractor engine, be properly seated in the operator's seat and aware of complete knowledge of correct and safe handling of both the tractor and the implement. Always put the gearshift lever in neutral, disconnect the PTO control and put the hydraulic controls in neutral.

05 - ⚠ Do not start the engine indoors or without adequate ventilation, as the exhaust gases are harmful to health.

06 - ⚠ When maneuvering the tractor to hitch the implement, make sure you have the necessary space and that there are no people very close. Always maneuver in low gear and be prepared to brake in an emergency.

07 - ⚠ Do not make adjustments with the implement in operation.

08 - ⚠ When working on slopes, proceed with care, always trying to maintain the necessary stability. In the event of an imbalance beginning, reduce the acceleration and turn the tractor wheels to the side of the slope of the terrain.

09 - ⚠ Always drive the tractor at speeds compatible with safety, especially when working on rough terrain or slopes. Always keep the tractor engaged.

10 - ⚠ When driving the tractor on roads, keep the brake pedals interconnected and use safety signs.

11 - ⚠ Do not work with the tractor if the front is light. If there is a tendency to lift, add weights to the front or front wheels.

12 - ⚠ When leaving the tractor, put the gear lever in neutral and apply the parking brake.

13 - ⚠ Alcoholic beverages or some medications can cause loss of reflexes and alter the operator's physical condition. Therefore, never operate this equipment while using these substances.

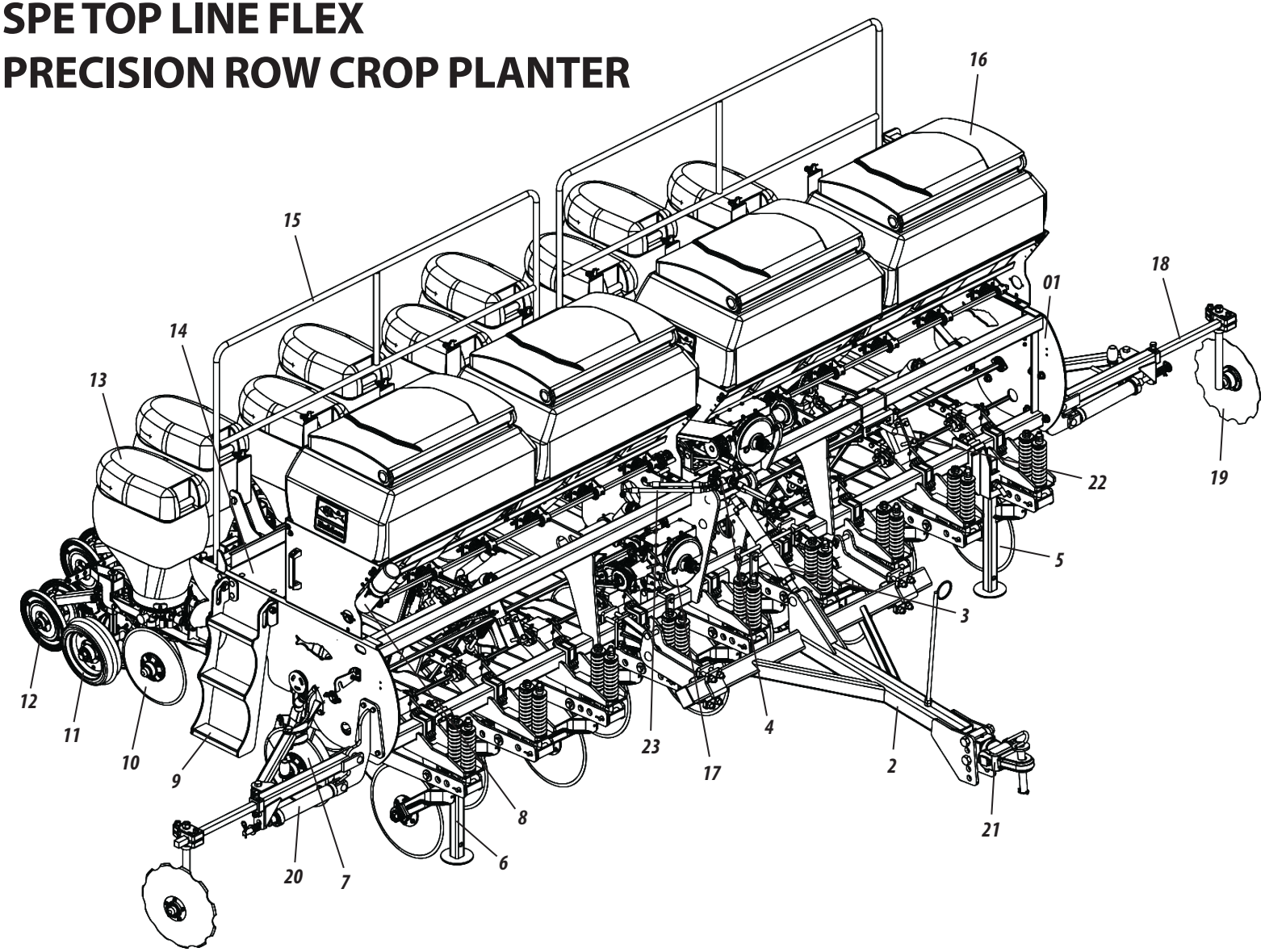
14 - ⚠ Read or explain all of the above procedures to the user who cannot read.

Em caso de dúvidas, consulte o Pós Venda
Telefone: 0800-152577 / E-mail: posvenda@baldan.com.br

WARNINGS

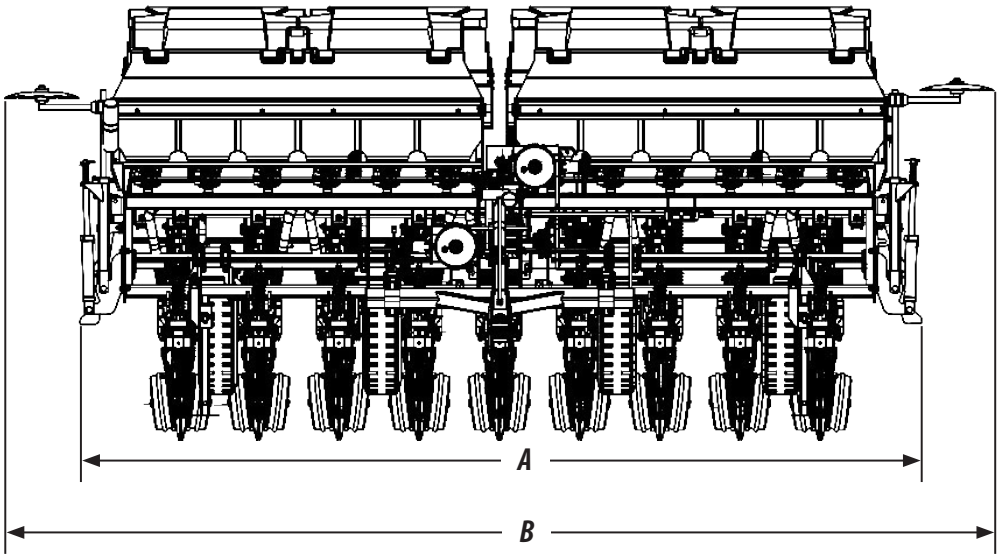
COMPONENTS

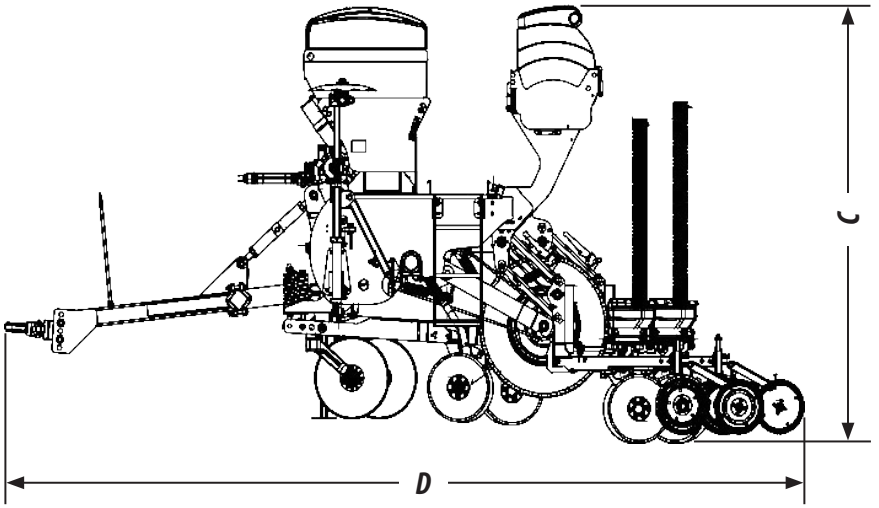
SPE TOP LINE FLEX
PRECISION ROW CROP PLANTER

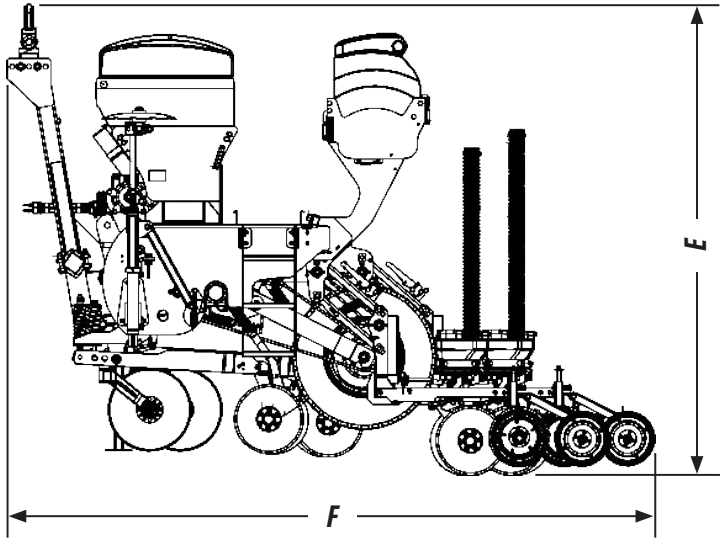


1 - Chassi
2 - Coupling Header
3 - 3rd Coumpling Point Ragulator
4 - Valve
5 - Cutting Disc
6 - Support
7 - Double Disc of Fertilizer
8 - Container For Instruction Manual
9 - Stair
10 - Double Disc of Seed
11 - Depth Limiting Wheel
12 - Wheel Type "V"
13 - Seed Hopper
14 - Platform
15 - Platform Handrail
16 - Fertilizer Hopper
17 - Speed Box
18 - How Marker
19 - How Marker Disc
20 - How Marker Cylinder
21 - Coupling Shackle
22 - Lockout Lever
23 - Hydraulic Hose

SPE TOP LINE FLEX - PRECISION ROW CROP PLANTER







Model	Nr of Rows	Measure A (mm)	Measure B (mm)	Measure C (mm)	Measure D (mm)	Measure E (mm)	Measure F (mm)
SPE Top Line Flex 4000	7	3805	4567	2160	5215	2501	3778
SPE Top Line Flex 4500	9	4705	5467	2160	5215	2501	3778

DIMENSIONS

TECHNICAL SPECIFICATIONS

Model	Nr of Rows	Useful Width (mm)	Total Width (mm)	Fertilizer Deposit capacity (L)	3rd Seed Deposit Capacity (L) (Optional)	Number of wheels				Approximate weight (kg)		Tractor power (hp)
						Without 3rd Deposit		With 3rd Deposit		Without 3rd Deposit	With 3rd Deposit	
						Standard	Optional	Standard	Optional			
SPE Top Line Flex 4000	7	3000	3550	900	810	2	4	2	4	2400	3600	85
SPE Top Line Flex 4500	9	4000	4450	1500	972	2	4	4	-	3300	4300	110

Seed tank Capacity (L) 45
Total length (mm) 4900
Total height (mm) 2160
*Minimum rows spacing (mm) * 450*
Wheels ..... Militar 7.0 x 16 x 10L

Baldan reserves the right to change and or improve the technical characteristics of its products, without prior notice, and without obligation to do so with previously manufactured products. Technical specifications are approximate and reported under normal working conditions.

INTENDED USE OF SPE TOP LINE FLEX

SPE TOP LINE FLEX was developed to sow summer crops with precision.
SPE TOP LINE FLEX must be conducted and operated only by a properly instructed operator.

UNPERMITTED USE OF SPE TOP LINE FLEX

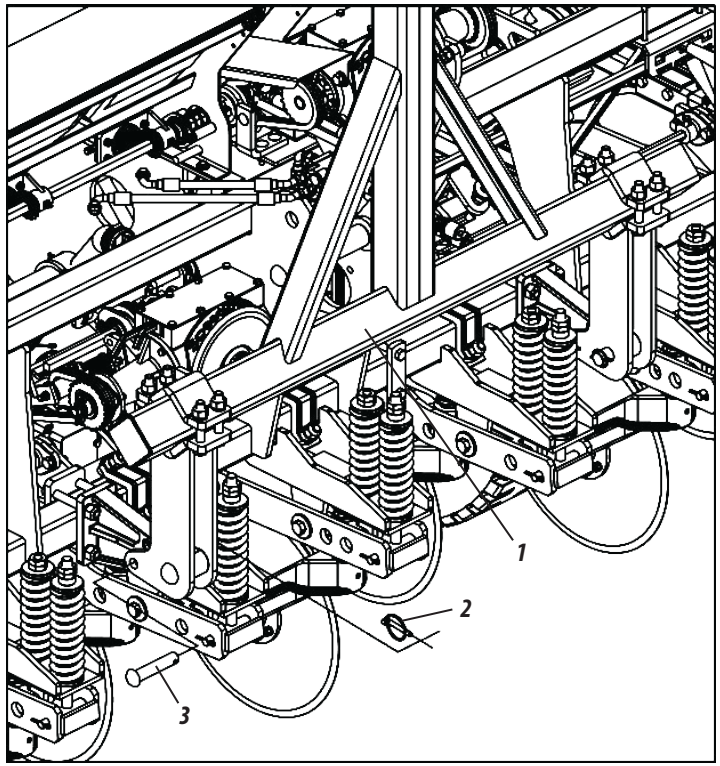
To avoid damage, serious accident or death, DO NOT transport people on any part of **SPE TOP LINE FLEX.**
It is NOT permitted to use **SPE TOP LINE FLEX** to attach, tow or push other implements or accessories.
SPE TOP LINE FLEX must NOT be used by an inexperienced operator who does not know all the driving, command and operation techniques.

The Baldan seeders model **SPE Top Line Flex** leave the factory semi-assembled, with only a few components missing and which must be assembled as follows:

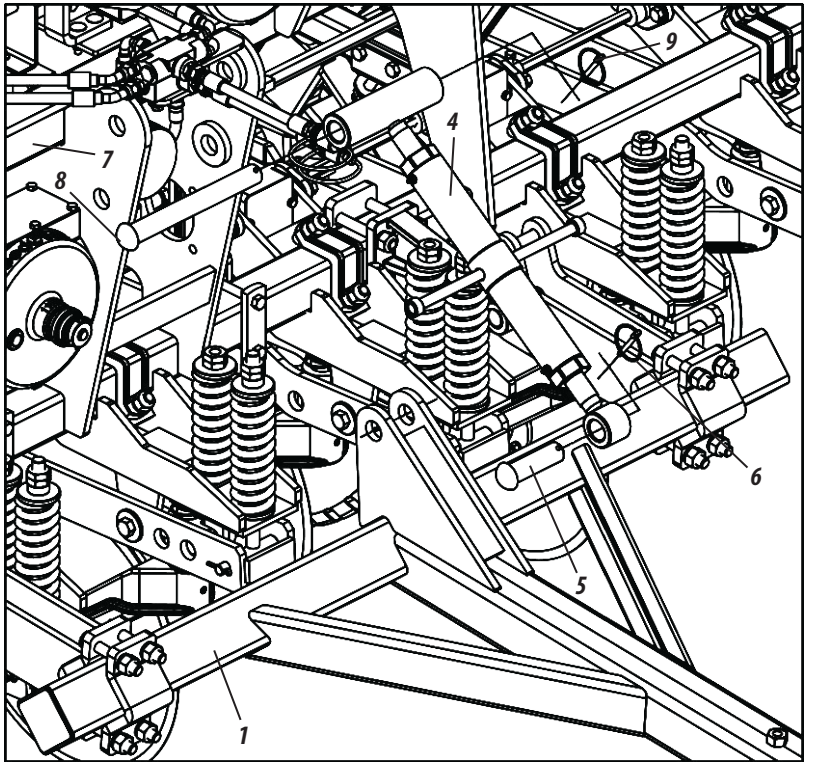
COUPLING HEADER ASSEMBLY

To assemble the coupling header on the **SPE Top Line** seeder 4000/4500, proceed as follows:

1- Place the coupling header (1) in the working position, removing the lock with ring (2) and the pin (3) that were placed for transporting the seeder.



2- Then, insert the regulator (4) in the coupling header (1), fixing it with the pin (5) and lock with the ring (6) and in the upright support (7) with the pin (8) and lock with ring (9).



IMPORTANT

Before starting the coupling header assembly, look for an ideal location where it is easy to identify the components and assemble the coupling header.

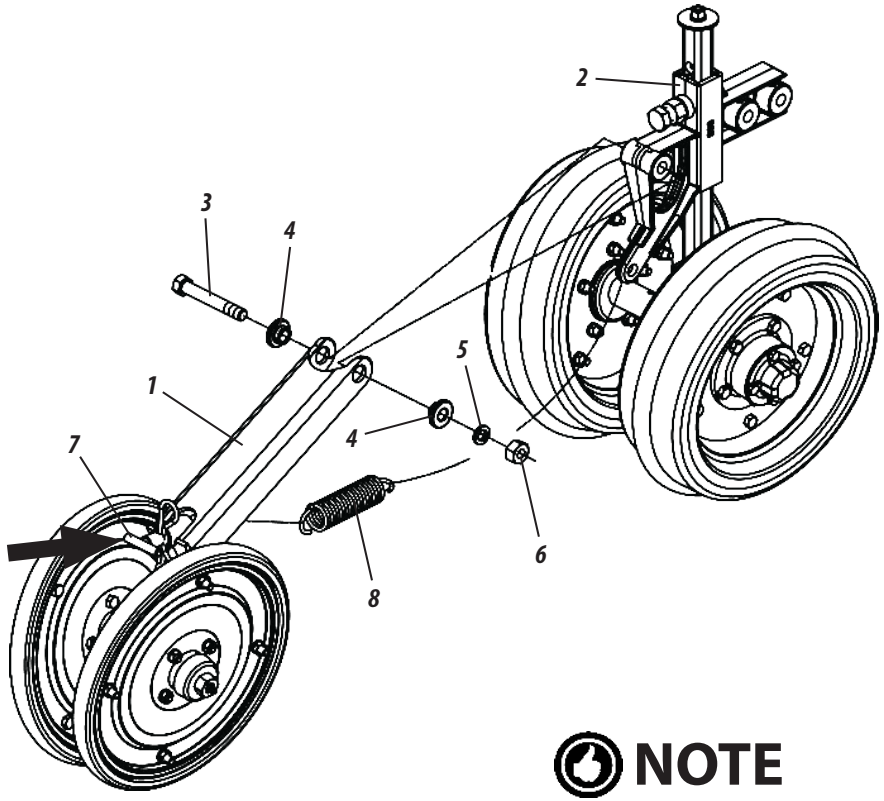
ASSEMBLY

COMPACTATION WHEELS ASSEMBLY

To mount the "V" wheel support (1), proceed as follows:

1- Couple the "V" wheel support (1) to the depth wheel cart (2), fixing it with the screw (3), bushings (4), washer (5) and nut (6).

2- Then place the lever (7) fully forward and engage the spring (8) on the support (2).



NOTE

Perform the same Assembly procedure on the other carts.

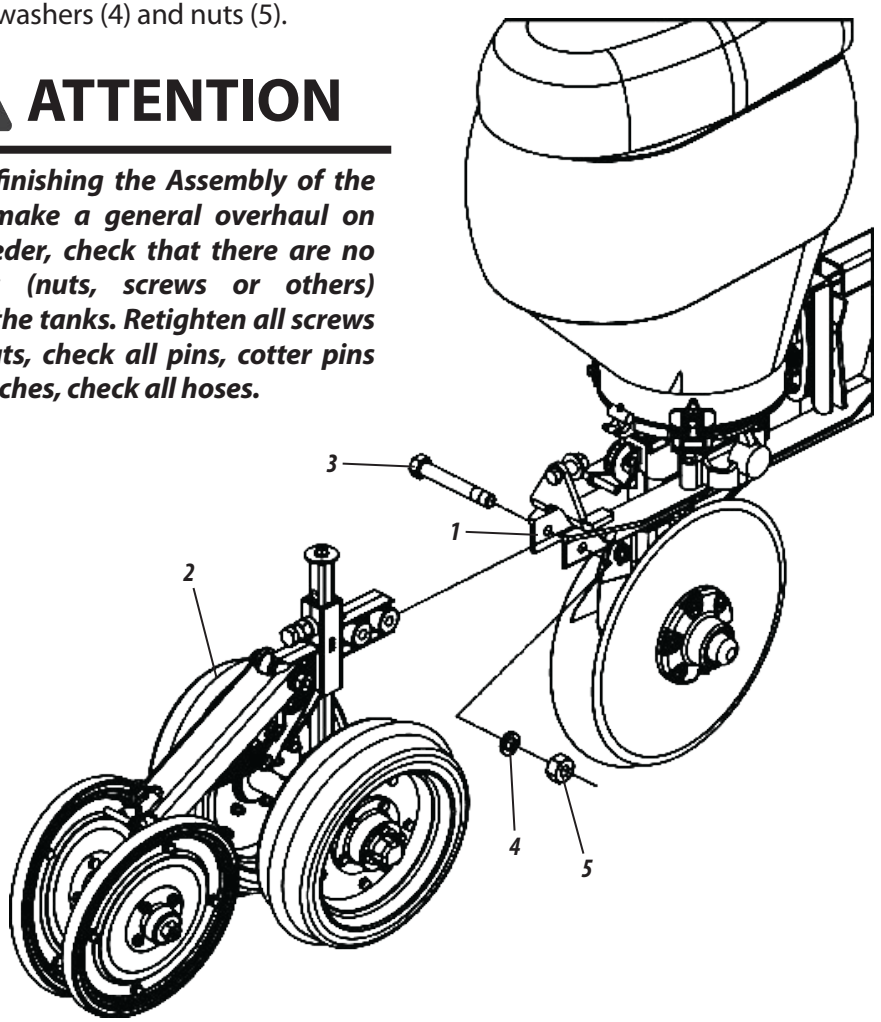
LINES ASSEMBLY

To assemble the lines (1), proceed as follows:

1- IInsert the trolley (2) between the thread plates (1), fixing it with the screws (3), lock washers (4) and nuts (5).

ATTENTION

When finishing the Assembly of the lines, make a general overhaul on the seeder, check that there are no objects (nuts, screws or others) inside the tanks. Retighten all screws and nuts, check all pins, cotter pins and latches, check all hoses.

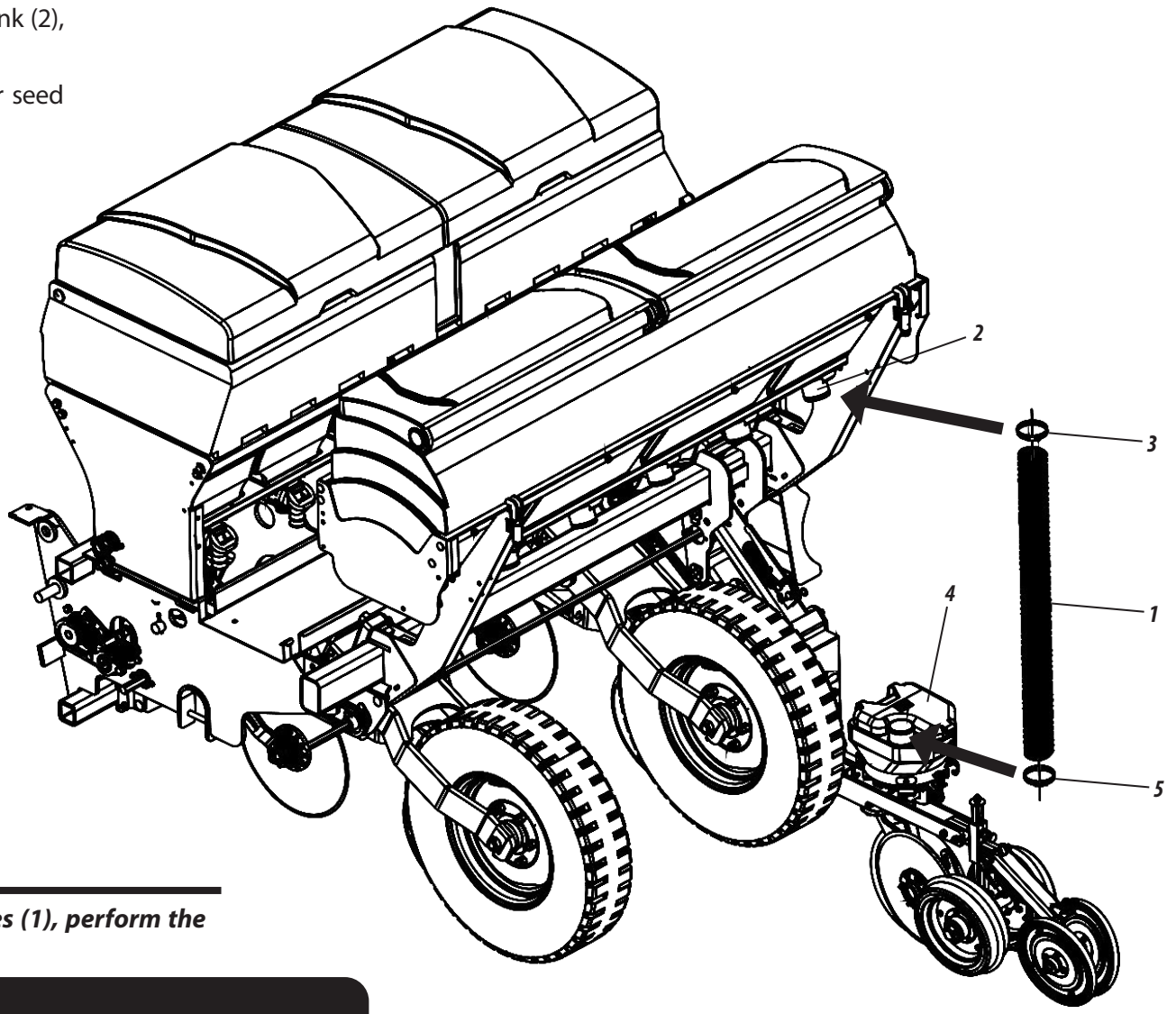


ASSEMBLY THE CONDUCTIVE SEED HOSES - 3RD SEED DEPOSIT (OPTIONAL)

When finishing the assembly of the lines, fix the conductive seed hoses (1), for this, proceed as follows:

1- Couple the conductive seed hose (1) in the upper seed tank (2), through the clamp (3).

2- Then, connect the conductive seed hose (1) to the lower seed tank (4), fixing through the clamp (5).



⚠ ATTENTION

When finishing the assembly of the conductive seed hoses (1), make a general overhaul on the seeder, check that there are no objects (nuts, screws or others) inside the tanks. Retighten all bolts and nuts, check all pins, cotter pins and locks, check all hoses.

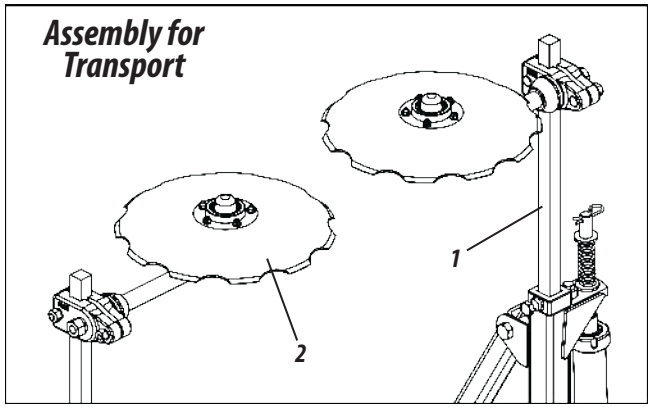
NOTE

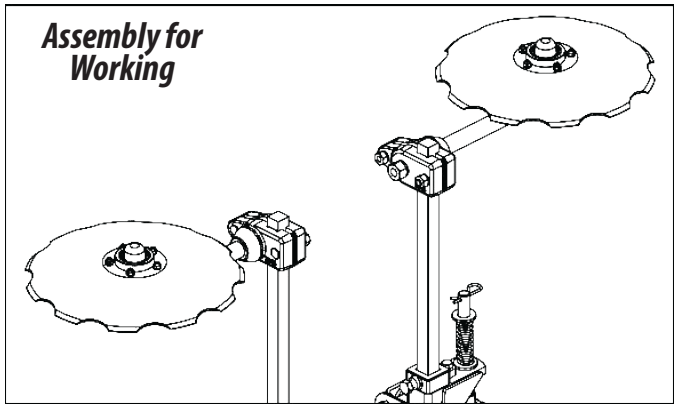
When finishing the assembly of the conductive seed hoses (1), perform the same procedureon the other lines.

ASSEMBLY

HOW MARKER DISC ASSEMBLY

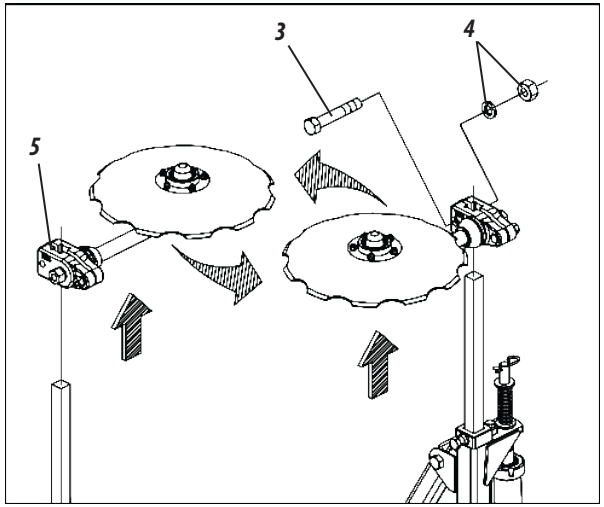
The seeders leave the factory with the line markers (1) mounted. The disks (2) are mounted inversely to their respective markers to avoid the risk of accidents in the transport of the seeder.

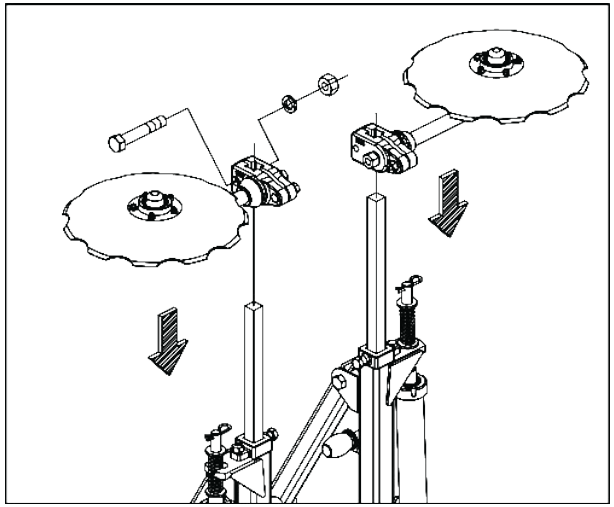




Before starting to work with the seeder, change the discs (2) in the row markers (1), to do this, proceed as follows:

1- Loosen the screws (3), washers and nuts (4), remove the disc supports (5) and mount them on the markers opposite to the ones originally assembled.





IMPORTANT

Before starting the Assembly of the line marker, look for a safe and easily accessible place where it facilitates the Assembly of it.

HITCH TO TRACTOR

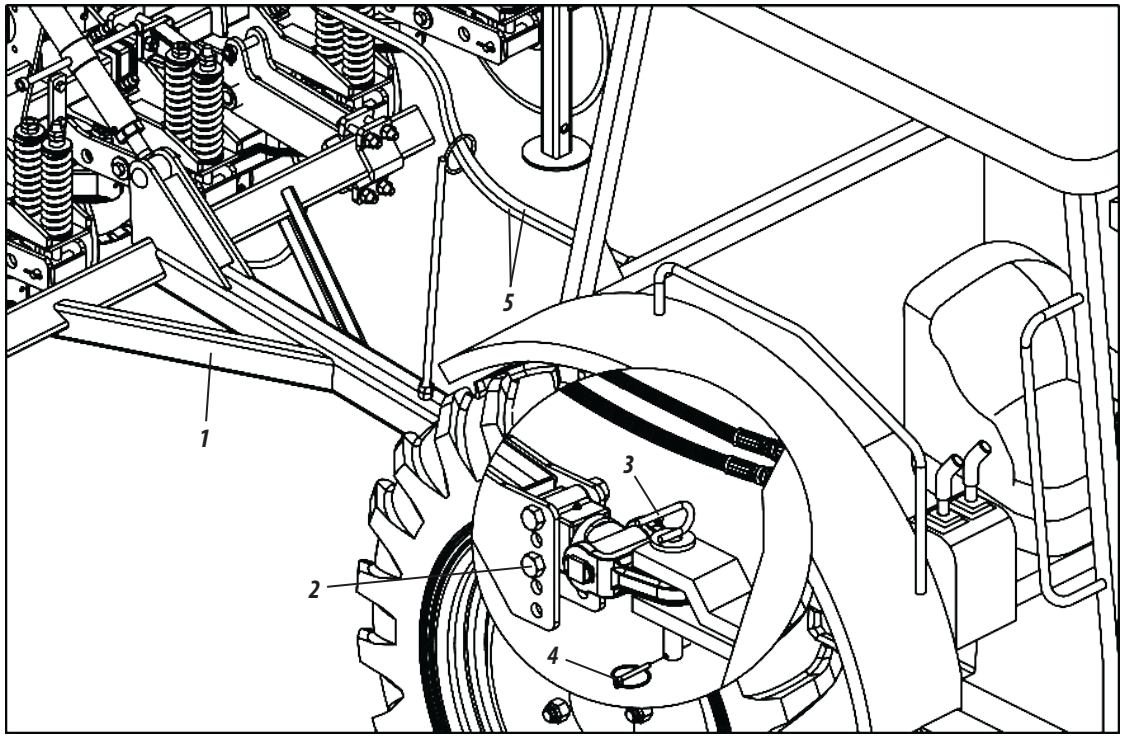
Before coupling the seeder to the tractor, check that the tractor is equipped with a set of weights or ballast on the front or on the front wheels to avoid lifting the tractor. The rear wheels will give the tractor greater stability and traction to the ground:

To attach the seeder, proceed as follows:

1- Level the coupling header (1) of the seeder in relation to the tractor coupling through the settings (2) of the coupling jumle. Then, slowly approach the tractor to the tractor in reverse, paying attention to the application of the brakes.

2- Proceed the coupling of the seeder to the tractor, fixing it through the coupling pin (3) and lock (4).

3- Couple the hoses (5) to the tractor's quick coupling.



⚠ ATTENTION

Before connecting or disconnecting the hydraulic hoses, turn off the engine and relieve pressure from the hydraulic system by fully operating the control levers. When relieving system pressure, make sure that no one is close to the equipment's movement area.

IMPORTANT

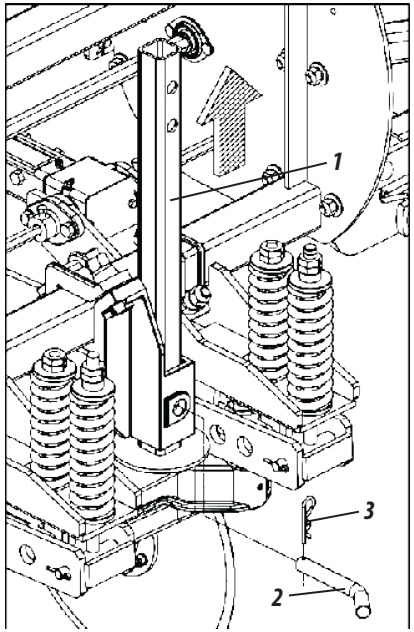
When hitch the seeder, look for a safe and easily accessible place, always use reduced gear with low acceleration.

WORK / TRANSPORT

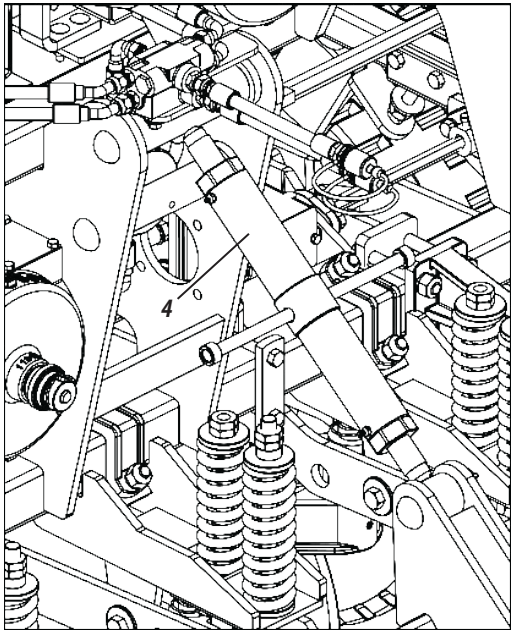
PREPARATION FOR WORK

Before working with the seeder, proceed as follows:

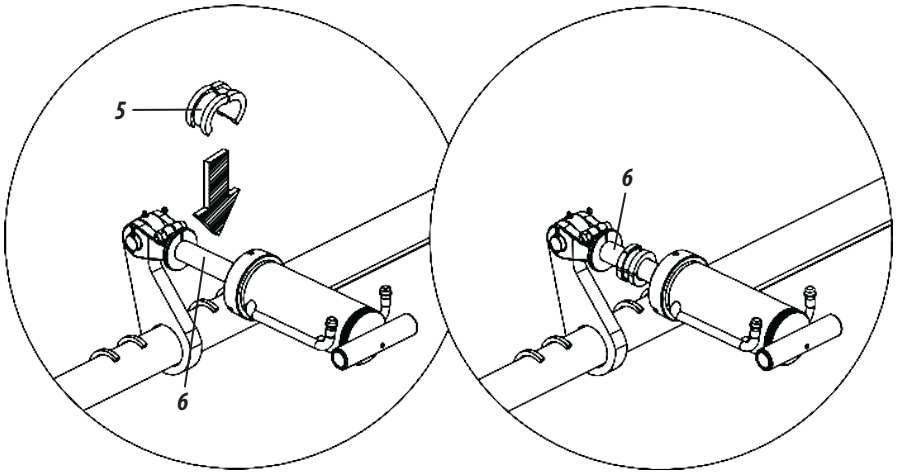
1- Collect the support bracket (1) and secure with the pin (2) and lock (3).



2- With the seeder down, check that it is level with respect to the ground, otherwise, level it using the header regulator (4).



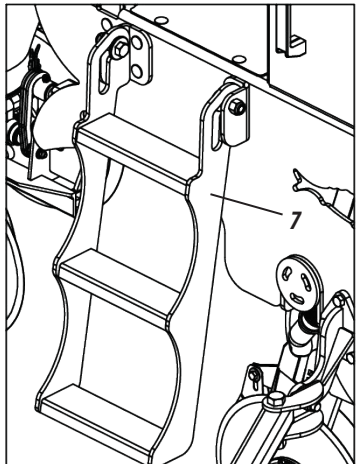
3- Then, lift the lines by fully activating the stroke of the hydraulic cylinder and place the depth gauge (5) on the cylinder rod (6).



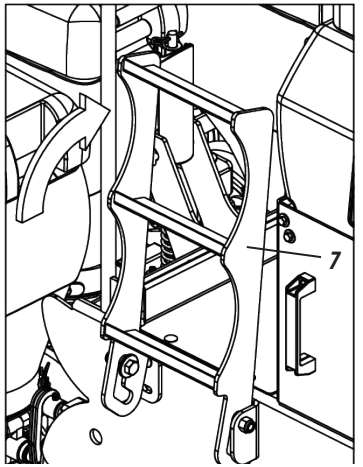
IMPORTANT

Do not transport the loaded seeder as it may damage the equipment. We recommend that you supply it only at the workplace. If the seeder is going to remain in the field for any reason, we recommend covering it with waterproof tarpaulin to avoid moisture.

4- Then lift the ladder (7), locking it.



Supply position or Warehouse maintenance



Position for work or transport

⚠ ATTENTION

Do not stay on the ladder when the seeder is working or being transported.
Do not work or transport the seeder with the ladder open.
Do not transport people on the platform, ladder or any other part of the seeder.
ignoring these warnings could result in serious accidents.

IMPORTANT

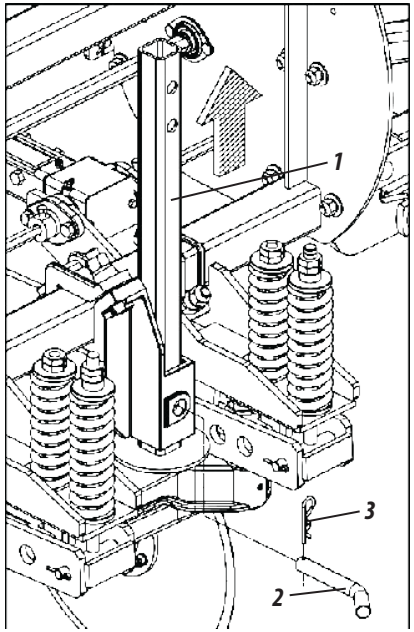
To access or fill the tank, always use the ladder.

The articulated ladder (7) complies with the NBR standards.

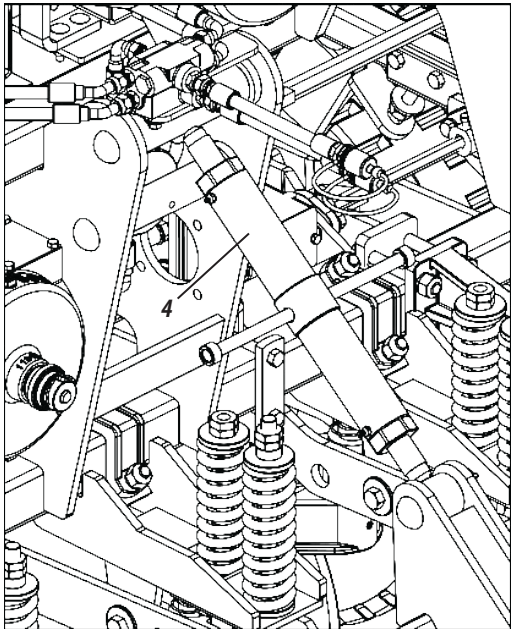
PREPARATION FOR TRANSPORT

Before transporting the seeder, proceed as follows:

1- Collect the support bracket (1) and secure with the pin (2) and lock (3).

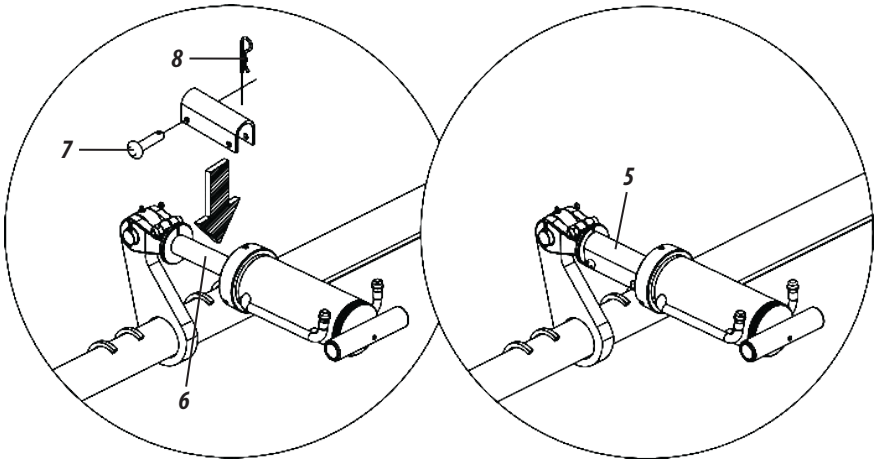


2- With the seeder down, check that it is level with respect to the ground, otherwise, level it using the header regulator (4).



WORK / TRANSPORT

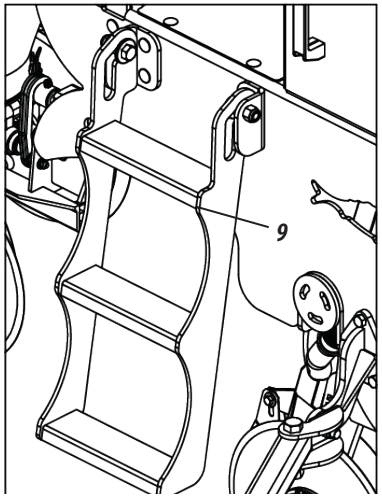
1- Then, lift the lines by fully activating the stroke of the hydraulic cylinder and place the lock (5) on the cylinder rod (6) locking with the pin (7) and lock (8).



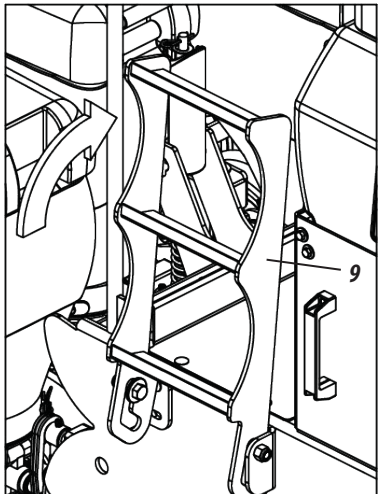
IMPORTANT

Do not transport the loaded seeder as it may damage the equipment. We recommend that you supply it only at the workplace. If the seeder is going to remain in the field for any reason, we recommend covering it with waterproof tarpaulin to avoid moisture.

2- Then lift the ladder (9), locking it.



Supply position or Hopper maintenance



Position for work or transport

ATTENTION

Do not stay on the ladder when the seeder is working or being transported.
Do not work or transport the seeder with the ladder open.
Do not transport people on the platform, ladder or any other part of the seeder.
ignoring these warnings could result in serious accidents.

IMPORTANT

To access or fill the tank, always use the ladder.
The articulated ladder (7) complies with the NBR standards.

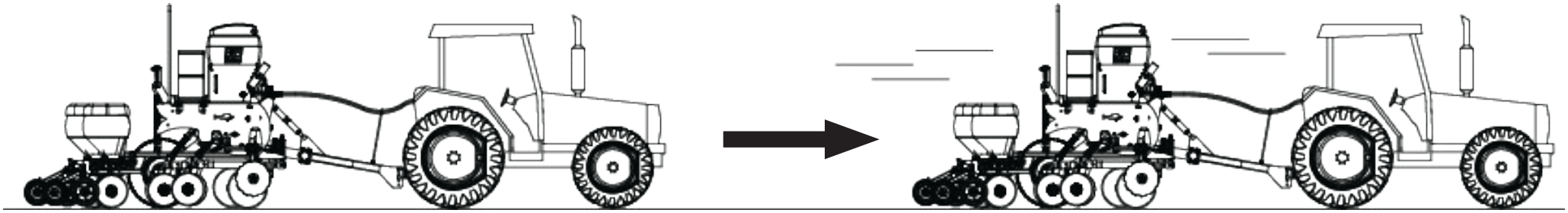
PLANNING FOR PLANTING

Due to factors such as germination index, physical purity, vigor (provided in the seed packaging), in addition to pests and diseases that can occur during the crop cycle, the number of plants in the harvest is less than the number of seeds effectively distributed in the crop. planting.

In addition, local working conditions must also be considered, since the seeder tires may slip or slip during planting. See how to calculate the seeder sliding index.

1- The sliding index of the seeder is obtained by comparing the number of turns of the empty seeder tire with the number of turns of the supplied seeder tire, moving it across the terrain.

2- With the sowing machine empty and attached to the tractor, mark a starting point on the ground and on the sowing tire. Then, move the seeder until 10 (ten) turns of the tire are completed. Take the measurement and note the distance covered.



3- Then, fill the seeder, repeat the previous procedure and note the distance covered.

4- With the data in hand, make the formula below.

$$\text{Fórmula: } \frac{DCC \times DSC \times 100}{DSC}$$

Dados da Fórmula:
DCC = Distance with Load
DSC = No Load Distance

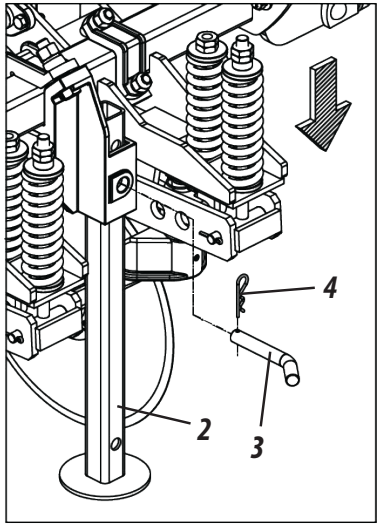
ATTENTION | ***The seeder tires must have the same design and the same pressure calibration. The wheels must have the same pressure regulation on the springs.***

PREPARATION FOR WORK

ADJUSTMENTS

NEW SPACES (FIGURES 17/18/19)

There are cultures that need to remove the lines to make the new spacing, for this, proceed as follows:



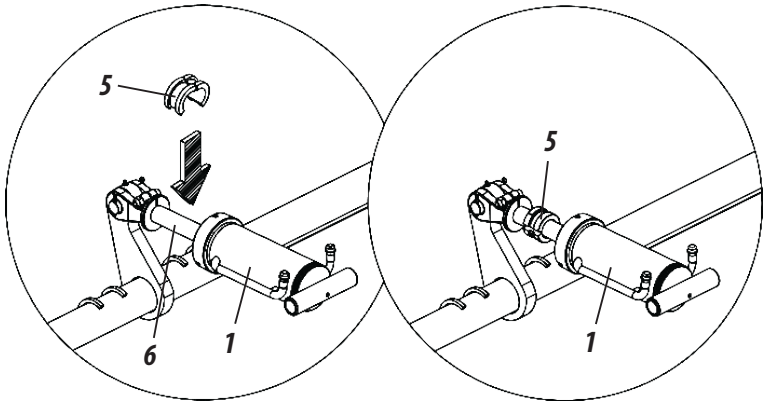
1- Lift the seeder by actuating the hydraulic cylinder (1).

2- Then, support the seeder on the rear so that it is stabilized.

3- Then, lower the support brackets (2) and secure it with the pin (3) and lock (4).

4- Then, before lowering the hydraulic cylinder (1), place the limiting rings (5) on the rods (6) of the cylinders, this will prevent the suspended weight of the lines from becoming greater.

5- To adjust the new spacing, loosen the screws (1), releasing the locks (2) of the lines that will be adjusted the spacing.

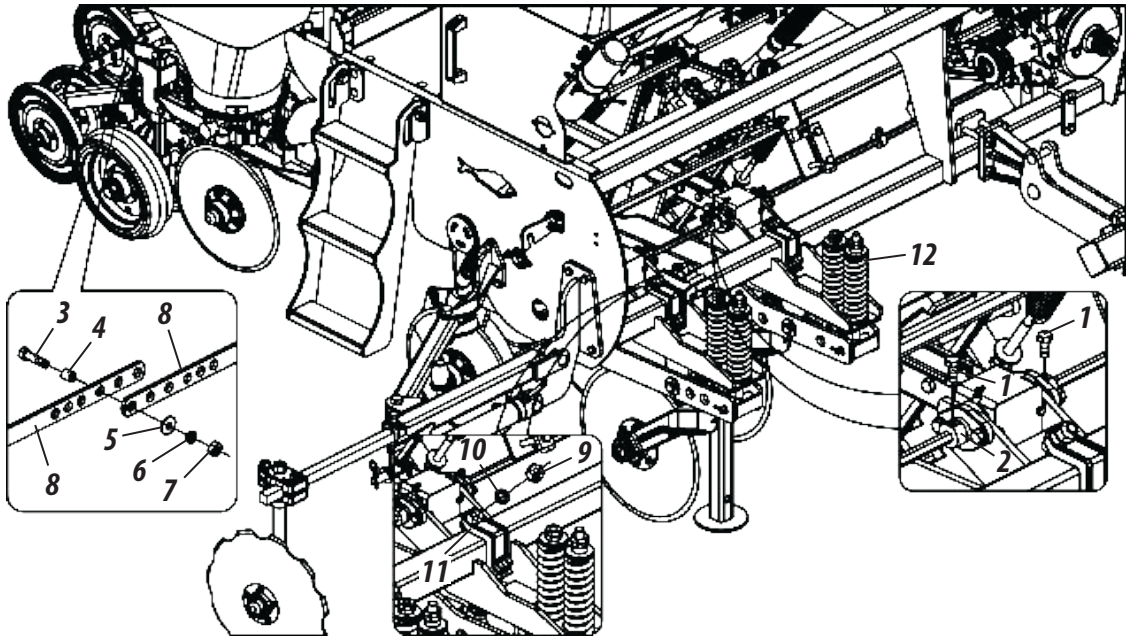


6- Then, loosen the screws (3), bushing (4), flat washer (5), pressure washer (6) and nut (7), removing the spacer bars (8).

7- Then, loosen the nuts (9) and lock washers (10) from the clamp (11), remove or adjust the lines (12) to the desired spacing.

8- When finishing adjusting the lines (12), retighten the nuts (9) and lock washers (10) of the clamp (11) and the screws (1) of the locks (2).

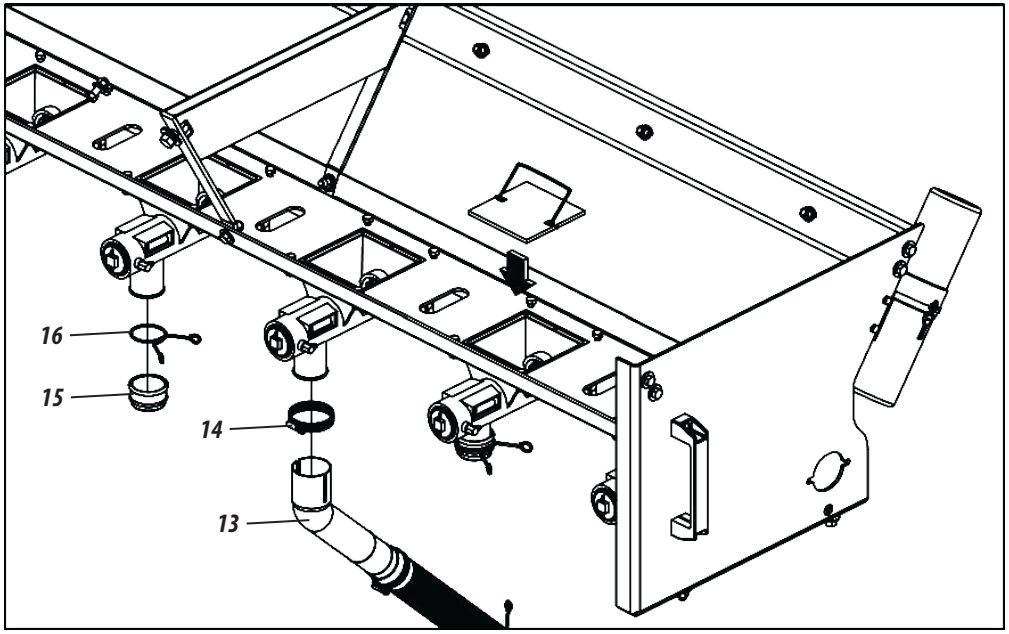
9- Finally, replace the spacer bars (8), adjusting them to the new spacing and insert the screw (3) with the bushing (4), washer (5), pressure washer (6) and nut (7).



⚠ ATTENTION | ***Before removing the lines for the new spacing, make sure that the seeder is properly supported. Avoid accidents.***

1- When removing the lines to adjust the new spacing, also remove their respective fertilizer conductive spouts (13) through the clip (14) and close the tank outlets, placing the plug (15) and locking with the clip (16).

2- Then close the tank entrances, placing the cover (17).



NOTE | ***Proceed daily to clean the closed outlets, removing the plug (15) so that the fertilizer is not compacted.***

WHEEL POSITION

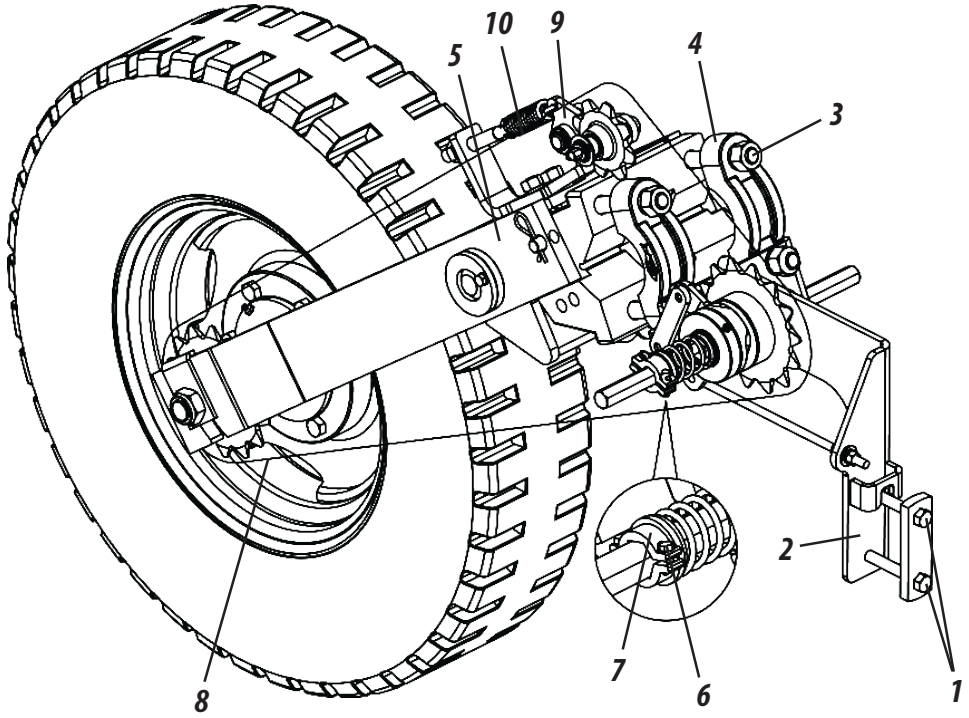
To modify the position of the wheels, proceed as follows:

1- Loosen the screws (1) of the ratchet support (2) and the screws (3) of the clamps (4) of the wheel support (5).

2- Then, loosen the screws (6) of the clamps (7), releasing the whole assembly to move it.

3- Then, slide the wheel and ratchet assemblies.

4- Observe the alignment of the wheel and ratchet gears with the drive chain (8).



ATTENTION

The minimum spacing between lines in the wheels is 450 mm.

To finish moving the wheels, relieve the pressure of the tensioner (9) by removing the spring (10). When you finish moving the wheels, adjust the tensioner pressure (9) again, replacing the spring (10).

ADJUSTMENTS

ADJUSTMENTS

MILLIMETERS SPACING TABLES

The **SPE Top Line Flex** model seeders are provided with spacing according to the number of lines requested, and new spacing can be made according to the type of culture desired.

Model	*Nº of Rows*	*Espacing (mm)*	*Useful Width (mm)*
4000	4	700 / 750 / 800 / 850 / 900 / 950 / 1000	3000
	5	550 / 600 / 650 / 700 / 750	3000
	6	500 / 550 / 600	3000
	7	450 / 500	3000

Tables 02

Model	*Nº of Rows*	*Espacing (mm)*	*Useful Width (mm)*
4500	4	900 / 950 / 1000	4000
	5	850 / 900 / 950 / 1000	4000
	6	700 / 750 / 800	4000
	7	550 / 600 / 650	4000
	8	450 / 550	4000
	9	450 / 500	4000

ROW MARKER ADJUSTMENT

The adjustment of the line markers is important to obtain a planting with uniform spacing, making the line at the end of the seeder stay in the same spacing as the last planted line, facilitating future operations. To adjust the line markers, proceed as follows:

1- First, you must know the spacing between lines, the number of lines to be used in the operation and the front gauge of the tractor. Use the formula below, followed by an example.

EXAMPLE: For a planting with 09 rows in the seeder, spacing of 0.45 mts and the front gauge of the tractor with 1.43 mts, determine:

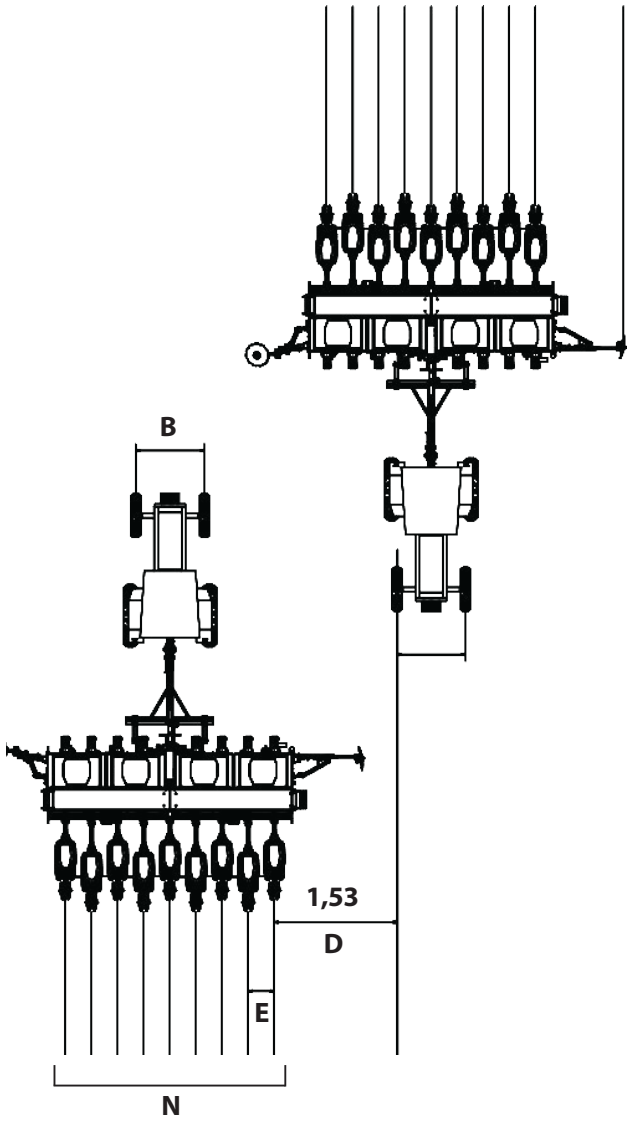
Fórmula: $D = \frac{E \times (N+1) - B}{2}$

Resolve: $X = \frac{0.45 \times 10 - 1.43}{2}$

D = 1.53 metros

WHERE:

E = *Line spacing (mts)*
N = *Number of seeder lines*
B = *Tractor front gauge*
D = *Marker distance*



2- Adjust the line marker disc with 1.53 mts to the center of the first planting line.

3- The line markers are alternative, lower one after the other, so if during the planting before finishing the line there is a need to interrupt the work, activate the piston so that the seeder goes up and down twice to continue working with the marker on the right side.

⚠ ATTENTION

Avoid accidents caused by the intermittent action of the line markers.

When activating the seeder, check if there are no people under line markers or in their area of action.

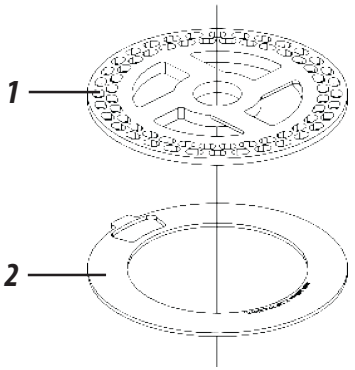
SEED DISTRIBUTION SYSTEM

CHOOSING THE RIGHT DISC

As a parameter for selecting the appropriate disc, always use the largest seeds.

The grains must not get stuck in the holes. To make sure of this, place the disc on a flat place and insert a seed in each hole. Then, lift the disc, all seeds should be on the table.

To avoid damage to the seed, the thickness of the distributor discs (1) must be equal to or slightly greater than the seed.



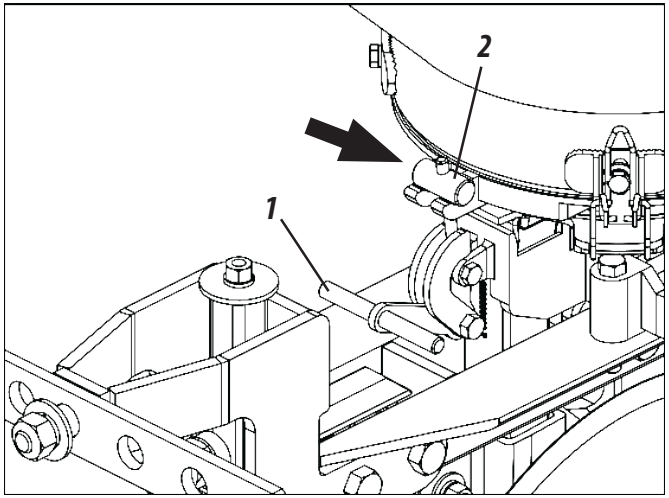
IMPORTANT

Always use the spacer ring (2) next to the distributor discs (1). The sum of the set, seed disk and ring must always be equal to 8.5mm in thickness for the perfect adjustment of the system.

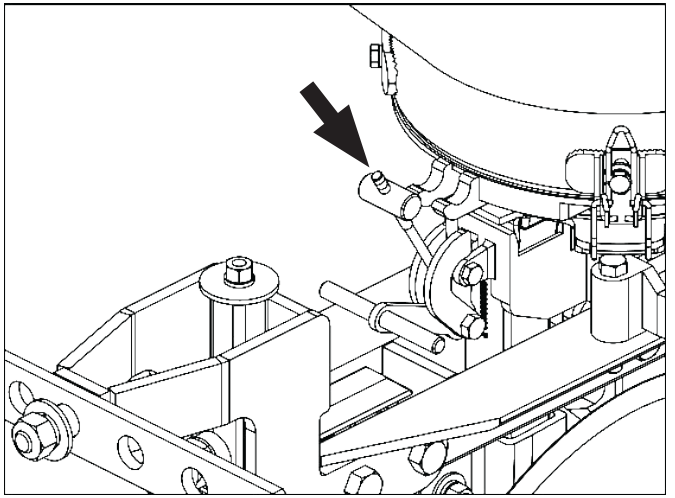
EXCHANGE OF SEED DISCS

To change or replace the seed distributor discs, proceed as follows:

Lift the lever (1) to disarm the latch (2) of the seed tank**, as shown in details "A" and "B".**



Detail "A"

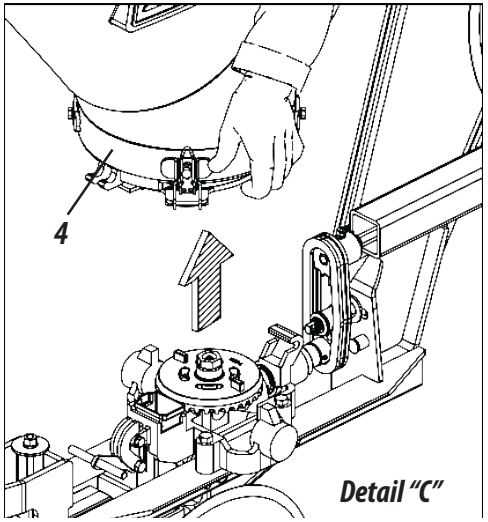


Detail "B"

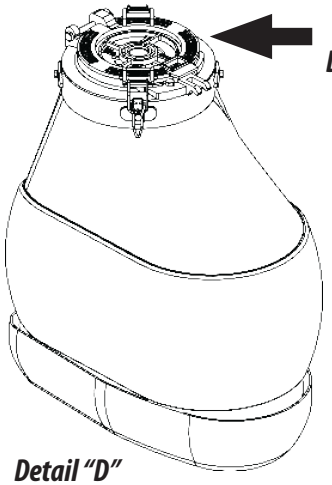
NOTE

If there are seeds in the tank, remove them before changing the disc and ring, preventing them from spreading on the floor or locking the system.

3rd Step: Then, remove the seed box (4) from the line and rotate, leaving the base of the distributor upwards, **as shown in Details "C" and "D".**

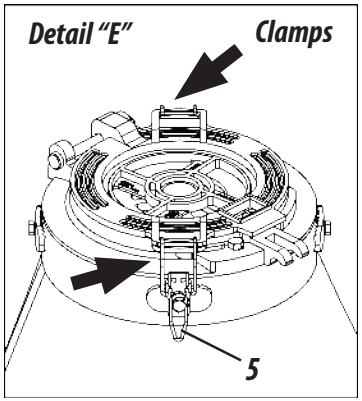


Detail "C"

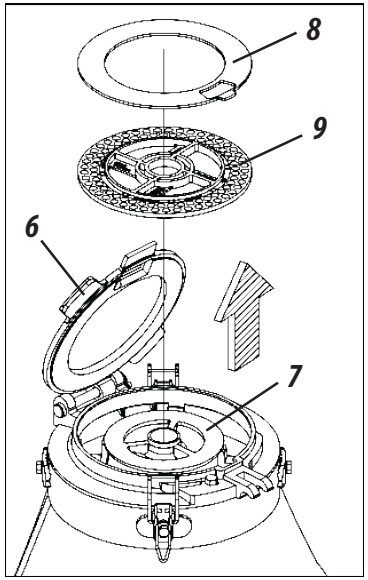


Detail "D"

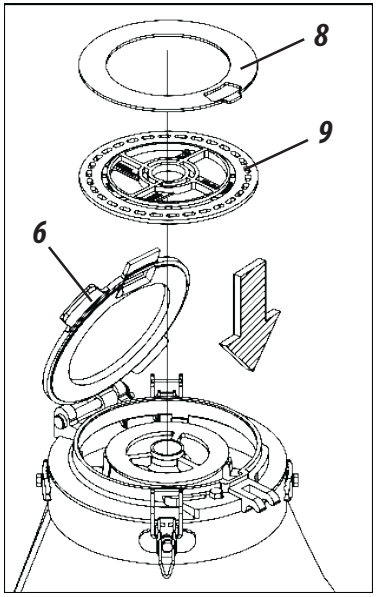
4th Step: Then, loosen the clips (5), tilt the base (6) and remove the ring (8) and disc (9) from the distributor base (7), replacing them with the ring and disc suitable for the culture that will work, **as shown in Details "E" and "F".**



Detail "E"

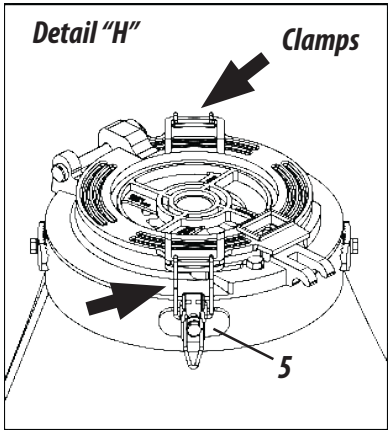


Detail "F"

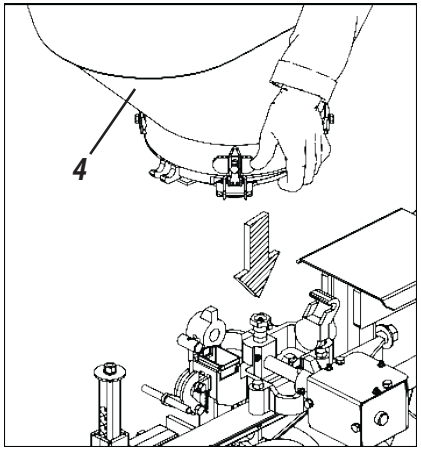


Detail "G"

5th Step: When changing the ring (8) and the disc (9), tilt the base (6) by closing it. Then, lock the clips (5) again, **as shown in Details "G" and "H".**

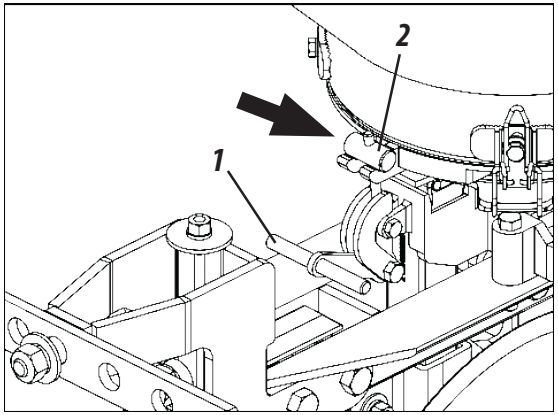


Detail "H"



Detail "I"

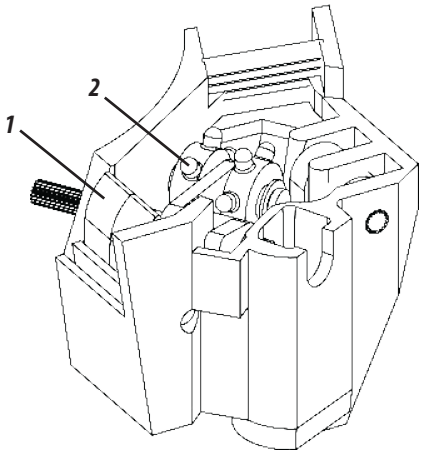
6th Step: Finish by replacing the seed box (4) in the line and reset the lock (3), fixing the lever (1) through the pin (2), **as shown in Details "I" and "J".**



Detail "J"

SEED DISTRIBUTION SYSTEM

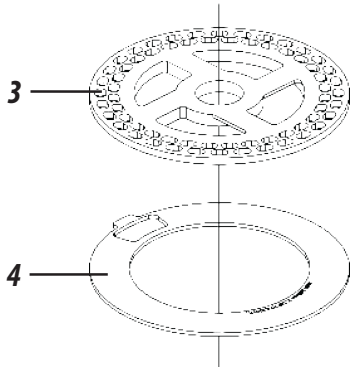
SEED DISTRIBUTION SYSTEM



Seed Dosing Box

ATTENTION

Before changing the disk and ring to work with the new seed, check the condition of the trigger (1) and the rosette (2), as the wear of these items, compromise the dosage. If necessary, replace them.

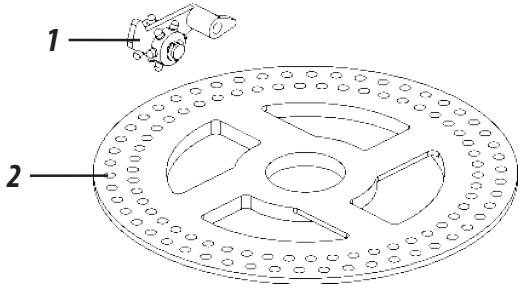


IMPORTANT

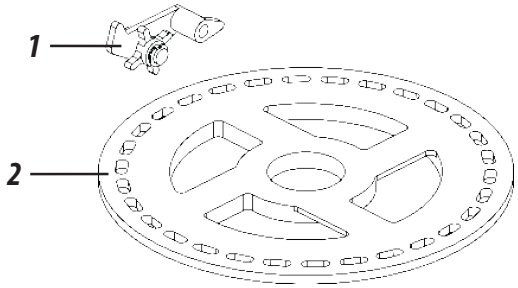
Change the distributor discs (3) and the spacer rings (4) when they show excessive wear.

SEED DOSING GEAR

The seed distribution box leaves the factory with the trigger mounted with double gears (1), for double row discs (2).



For single row discs (1), change the trigger with double rosettes to the single gear trigger (2), **as shown in the Figure below.**



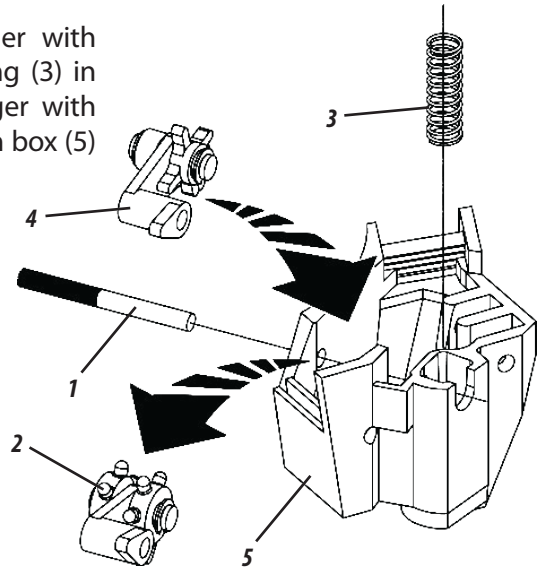
IMPORTANT

The seed distribution box has triggers and rosettes that must be cleaned internally at least once a day, for untreated seeds and twice a day for planting with treated seeds.

CHANGE OF DOUBLE GEAR FOR SIMPLE

To change the trigger with double gears, for the trigger with single gear, proceed as follows:

1- Remove the pin (1), the trigger with double gear (2), place the spring (3) in the socket and insert the trigger with single gear (4) in the distribution box (5) and lock with the pin (1).



DISCS AND RINGS SEED DISTRIBUTORS

The **SPE Top Line** seeder leaves the factory with some standard discs and rings, and other loose models can be optionally purchased.

Culture	Code	Standard Discs
Corn	60200717980	Disc w/ 28 holes ø 11,5mm (ø189 x 4,00mm) **Rampflow**
	60200717999	Disc w/ 28 holes ø 12,5mm (ø189 x 4,00mm) **Rampflow**
	60200718006	Disc w/ 28 holes ø 13,5mm (ø189 x 4,00mm) **Rampflow**
Sorghum	52200101049	Disc w/ 100 holes ø 5mm (ø35,5 x 189 x 3,00mm) w/Ring
Soy	60200718014	Disc w/ 90 holes ø 8mm (ø35,1 x 189 x 4,50mm) **Rampflow**
	60200718022	Disc w/ 90 holes ø 9mm (ø35,1 x 189 x 5,50mm) **Rampflow**
Disc	52200101316	Blind Disc (ø35,5 x 189 x 5,50mm) w/Ring

Tables 03

Culture	Code	Standards Rings
Corn	60200158094	Corn Ring Mod. U 4mm with recess 1mm **Rampflow**
	60200158140	Corn Ring Mod. U 4mm with recess 2mm **Rampflow**
	60200158159	Corn Ring Mod. U 4mm Smooth **Rampflow**
Soy	60200158108	Soy Ring Mod. U 4mm Smooth **Rampflow**
	60200158116	Soy Ring Mod. U 3mm Smooth **Rampflow**
	60200158124	Soy Ring Mod. U 3mm with recess 0,8mm **Rampflow**
	60200158132	Soy Ring Mod. U 4mm with recess 1mm **Rampflow**

Culture	Code	Optional Discs and Rings
Corn	60200718162	Disc w/ 28 holes ø 10,5mm (ø189 x 4,00mm) **Rampflow**
	60200718170	Disc w/ 28 holes ø 11mm (ø189 x 4,00mm) **Rampflow**
	60200718189	Disc w/ 28 holes ø 12mm (ø189 x 4,00mm) **Rampflow**
	60200718197	Disc w/ 28 holes ø 13mm (ø189 x 4,00mm) **Rampflow**
Sorghum	52200101200	Disc w/ 50 holes ø 5mm (ø35,5 x 189 x 3,00mm) w/Ring
Bean	60200700905	Disc w/ 34 holes ø 10,5 x 20mm (ø35,5 x 189 x 8,50mm) w/Ring
	52200101219	Disc w/ 64 holes ø 8 x 12,5mm (ø35,5 x 189 x 5,50mm) w/Ring
Sunflower	52200101235	Disc w/ 30 holes ø 5,5 x 13,4mm (ø35,5 x 189 x 4,50mm) w/Ring
soy	60200718200	Disc w/ 90 holes ø 7,3mm (ø35,1 x 189 x 4,50mm) **Rampflow**
	60200758167	Soy ring Mod. U 4mm Liso **Rampflow**
Canola / Sorghum	52200101278	Disc w/ 76 holes ø 5mm (ø35,5 x 186 x 3,00mm) c/ anel
Cotton	52200101286	Disc w/ 64 holes ø 7 x 12mm (ø35,5 x 189 x 5,50mm) c/ anel
Rice	52200101294	Disc w/ 40 holes ø 6,5 x 19,5mm (ø35,5 x 189 x 5,50mm) c/ anel
Blind	52200101324	Blind Disc (ø35,5 x 189 x 4,00mm) c/ anel
	60200700891	Blind Disc (ø35,5 x 189 x 8,00mm) c/ anel

DISCS AND RINGS OF THE CONVERSION SYSTEM FOR PEANUTS PLANTING

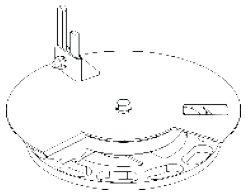
The peanut discs from the table on the right can only be purchased when the customer already has the conversion system for planting peanuts in his **SPE Top Line** seeder.

Culture	Code	Optional Discs and Rings
Peanut	60200700921	Disc w/ 11 holes ø 20 x 40mm (ø35,5 x 189 x 8,00mm) w/ring
	60200708876	Disc w/ 22 holes ø 20mm (ø35,5 x 189 x 8,50mm) w/ring

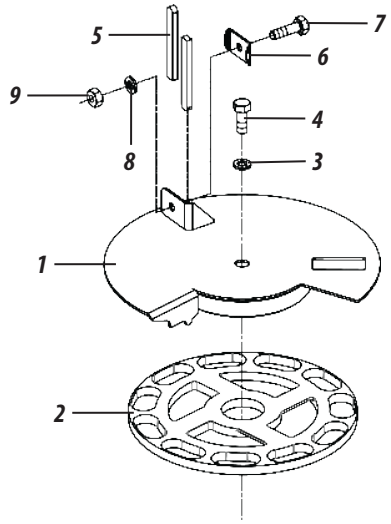
SEED DISTRIBUTION SYSTEM

CONVERSION SYSTEM FOR PEANUTS PLANTING (UNIVERSAL SYSTEM) - OPTIONAL

For the peanut culture, two conversion systems for planting peanuts (universal system) can be purchased, which are composed of the following items:

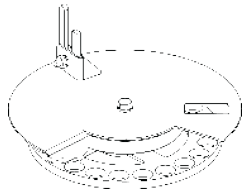


Complete Conversion System
Code: 5528010694-0

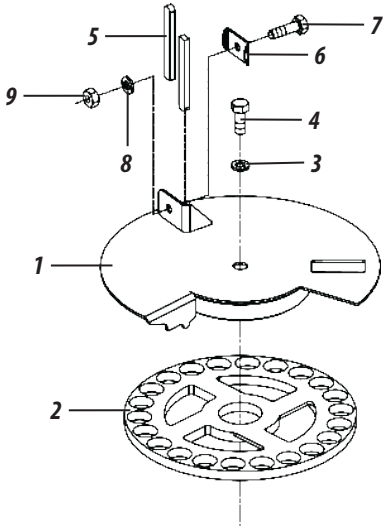


Conversion system for peanuts planting w/disc 11H 20 x 40mm

Items	*Code*	*Description*
01	5220010092-1	Welded distribution baffle disc
02	6020070092-1	Peanut Distributor Disc 11H ø20x40 mm
03	6020010404-0	Pressure washer ø 5/16" Media
04	6020311019-0	Hexagonal Head Bolt ø 5/16" x 7/8" 18F UNC1A GR2 RT
05	5212010001-7	Seed Dispenser
06	5460040003-0	Seed Dispenser clip
07	6020311004-1	Hexagonal Head Bolt ø 1/4" x 7/8" 20F UNC1A GR2 RT
08	6020010402-4	Pressure washer ø 1/4"
09	6020310742-3	Hexagonal Nut 1/4" 20F UNC GR5



Complete Conversion System
Code: 5528010693-2



Sistema de Conversão p/ plantio de Amendoim c/ Disco de 22F 20mm

Itens	*Code*	*Discriminação*
01	5220010092-1	Welded distribution baffle disc
02	6020070887-6	Peanut Distributor Disc 22H ø20 mm
03	6020010404-0	Pressure washer ø 5/16" Media
04	6020311019-0	Hexagonal Head Bolt ø 5/16" x 7/8" 18F UNC1A GR2 RT
05	5212010001-7	Seed Dispenser
06	5460040003-0	Seed Dispenser clip
07	6020311004-1	Hexagonal Head Bolt ø 1/4" x 7/8" 20F UNC1A GR2 RT
08	6020010402-4	Pressure washer ø 1/4"
09	6020310742-3	Hexagonal Nut 1/4" 20F UNC GR5

USE OF POWDER GRAPHITE OR INDUSTRIAL TALK

To facilitate distribution and increase the service life of the dispensing mechanism, powdered graphite or industrial talc should be mixed with the seeds.

Amount of graphite per kg of seed			
Seeders with system type distribution:	*Seeds previously treated with insecticide*		
	Small Round	*Large Round*	*Flat*
Discos Horizontais	04 grams	02 grams	04 grams

IMPORTANT

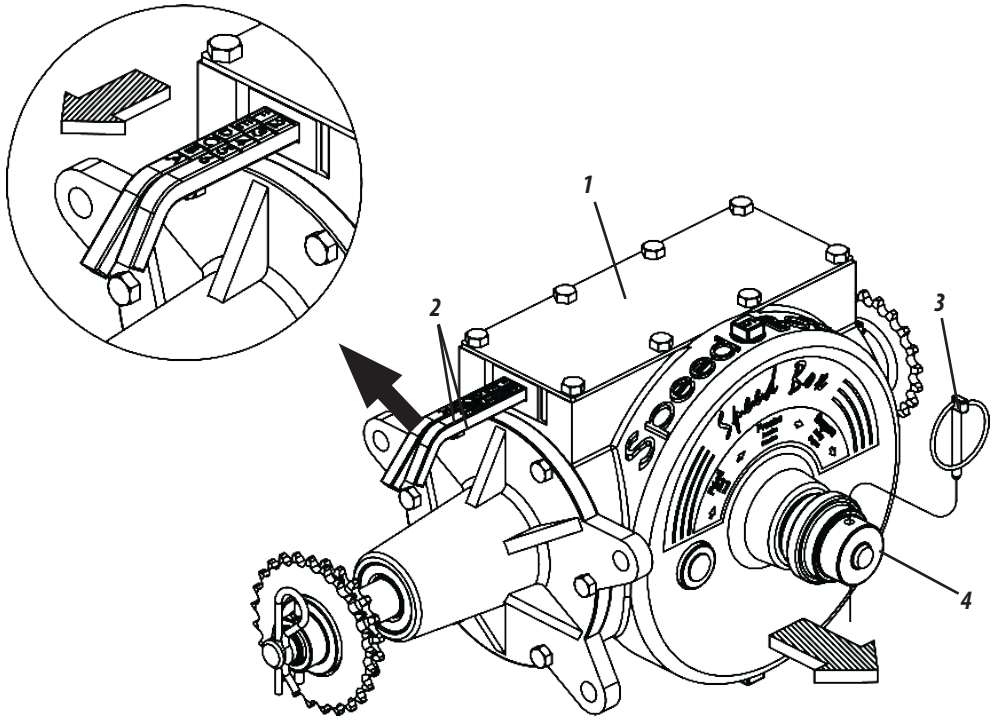
Graphite must not be mixed before seed treatment.
Graphite should not be mixed with the insecticide for application.
For untreated seeds, use only half of the graphite mentioned in the Table opposite.

SPEED BOX

The seeders are equipped with the Speed Box system (1), which activates the distribution system with simple ADJUSTMENTS, guaranteeing the exchange of fast rotations. To adjust the seeds, proceed as follows:

1- Select the desired quantity in the Tables and check the corresponding combination on the levers (2). Example: Position F2 in the Table, indicates that the lever with letters must be in the "F" position and the lever with numbers must be in the "2" position, **as shown in Figure 28.**

2- To move the levers, remove the lock (3), pull the handle (4), then adjust the levers as shown above. When finishing the combination, return the handle (4) and replace the lock (3).

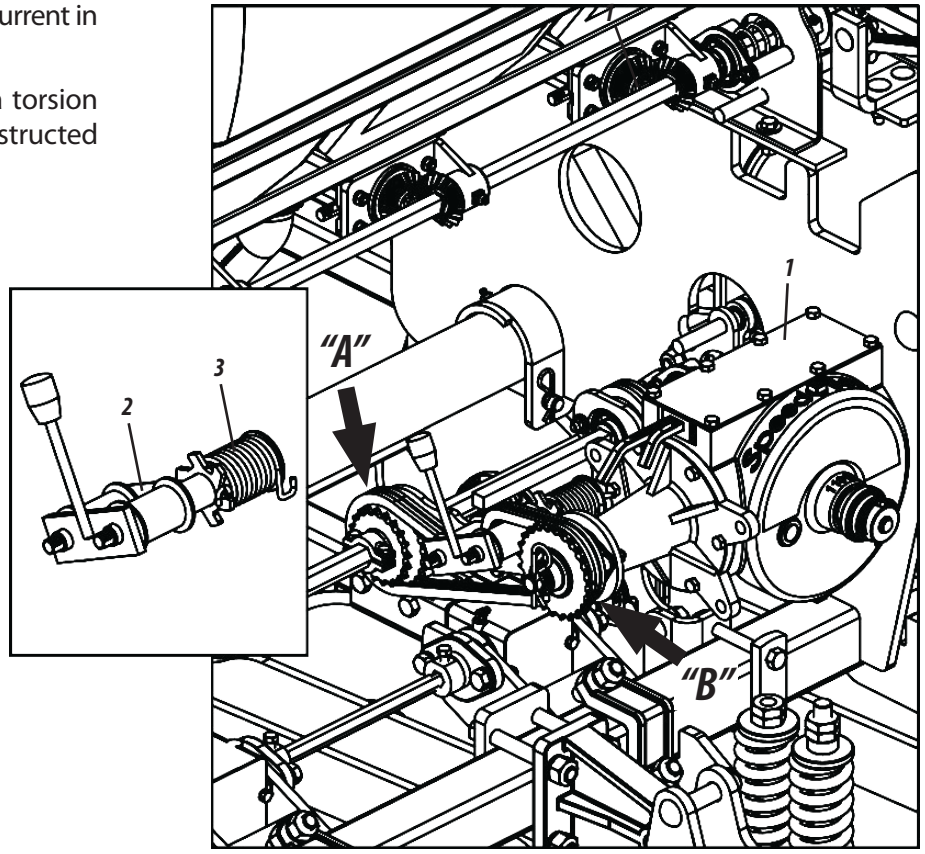


SEED DISTRIBUTION SYSTEM

ADJUSTMENT FOR DISTRIBUTION OF SEEDS

1- Seed adjustment is done through the Speed Box (1). To obtain more adjustments, invert the current in the motor gears **"A"** and moved **"B"**.

2- After changing the gears, check the chain tension. The tensioner (2) is equipped with a torsion spring (3) for greater flexibility. If more pressure is needed on the stretcher, proceed as instructed on page 57.



DISTRIBUTION OF SEEDS TABLE

The seed distribution table is made according to the number of holes in the distributor disk, gear changes and number of seeds to be distributed.

ATTENTION | ***If there is a need to check the seeds distributed on the ground, open the furrow and count the first seed found 5 linear meters. Then, take the result and divide by the 5 linear meters and you will have the result of distribution of the seeds per linear meter.***

Seed Distribution Table per linear meter - SPE Top Line Flex																	
Ratchet Shaft output gear (Z3)								20	Input Gear of Speed Box (Z4)								25
Combination	Number of holes in the Seed Distributor Disc																
	17	18	19	20	24	26	28	30	38	40	48	50	62	64	72	90	100
F - 1	1,3	1,4	1,5	1,5	1,9	2,0	2,2	2,3	2,9	3,1	3,7	3,9	4,8	4,9	5,6	7,0	7,7
F - 2	1,5	1,6	1,7	1,7	2,1	2,3	2,4	2,6	3,3	3,5	4,2	4,3	5,4	5,6	6,3	7,8	8,7
E - 1	1,6	1,7	1,8	1,9	2,3	2,5	2,7	2,9	3,7	3,9	4,6	4,8	6,0	6,2	7,0	8,7	9,7
F - 3	1,7	1,8	1,9	2,0	2,4	2,6	2,8	3,0	3,8	4,0	4,8	5,0	6,2	6,4	7,2	8,9	9,9
E - 2	1,8	2,0	2,1	2,2	2,6	2,8	3,0	3,3	4,1	4,3	5,2	5,4	6,7	7,0	7,8	9,8	10,9
D - 1	2,0	2,1	2,2	2,3	2,8	3,0	3,2	3,5	4,4	4,6	5,6	5,8	7,2	7,4	8,3	10,4	11,6
F - 4	2,0	2,1	2,2	2,3	2,8	3,0	3,2	3,5	4,4	4,6	5,6	5,8	7,2	7,4	8,3	10,4	11,6
E - 3	2,1	2,2	2,4	2,5	3,0	3,2	3,5	3,7	4,7	5,0	6,0	6,2	7,7	7,9	8,9	11,2	12,4
D - 2	2,2	2,3	2,5	2,6	3,1	3,4	3,7	3,9	5,0	5,2	6,3	6,5	8,1	8,3	9,4	11,7	13,0
C - 1	2,3	2,4	2,6	2,7	3,2	3,5	3,8	4,1	5,1	5,4	6,5	6,8	8,4	8,7	9,7	12,2	13,5
F - 5	2,4	2,5	2,6	2,8	3,3	3,6	3,9	4,2	5,3	5,6	6,7	7,0	8,6	8,9	10,0	12,5	13,9
E - 4	2,5	2,6	2,8	2,9	3,5	3,8	4,1	4,3	5,5	5,8	7,0	7,2	9,0	9,3	10,4	13,0	14,5
D - 3	2,5	2,7	2,8	3,0	3,6	3,9	4,2	4,5	5,7	6,0	7,2	7,5	9,2	9,5	10,7	13,4	14,9
C - 2	2,6	2,7	2,9	3,0	3,7	4,0	4,3	4,6	5,8	6,1	7,3	7,6	9,4	9,7	11,0	13,7	15,2
B - 1	2,6	2,8	2,9	3,1	3,7	4,0	4,3	4,6	5,9	6,2	7,4	7,7	9,6	9,9	11,1	13,9	15,5
A - 1	3,0	3,1	3,3	3,5	4,2	4,5	4,9	5,2	6,6	7,0	8,3	8,7	10,8	11,1	12,5	15,6	17,4
A - 2	3,3	3,5	3,7	3,9	4,7	5,1	5,5	5,9	7,4	7,8	9,4	9,8	12,1	12,5	14,1	17,6	19,6
B - 3	3,4	3,6	3,8	4,0	4,8	5,2	5,6	6,0	7,6	7,9	9,5	9,9	12,3	12,7	14,3	17,9	19,9
C - 4	3,4	3,7	3,9	4,1	4,9	5,3	5,7	6,1	7,7	8,1	9,7	10,1	12,6	13,0	14,6	18,3	20,3
D - 5	3,5	3,8	4,0	4,2	5,0	5,4	5,8	6,3	7,9	8,3	10,0	10,4	12,9	13,4	15,0	18,8	20,9
E - 6	3,7	3,9	4,1	4,3	5,2	5,7	6,1	6,5	8,3	8,7	10,4	10,9	13,5	13,9	15,6	19,6	21,7
A - 3	3,8	4,0	4,2	4,5	5,4	5,8	6,3	6,7	8,5	8,9	10,7	11,2	13,9	14,3	16,1	20,1	22,4
B - 4	3,9	4,2	4,4	4,6	5,6	6,0	6,5	7,0	8,8	9,3	11,1	11,6	14,4	14,8	16,7	20,9	23,2
C - 5	4,1	4,4	4,6	4,9	5,8	6,3	6,8	7,3	9,2	9,7	11,7	12,2	15,1	15,6	17,5	21,9	24,3
D - 6	4,4	4,7	5,0	5,2	6,3	6,8	7,3	7,8	9,9	10,4	12,5	13,0	16,2	16,7	18,8	23,5	26,1
A - 4	4,4	4,7	5,0	5,2	6,3	6,8	7,3	7,8	9,9	10,4	12,5	13,0	16,2	16,7	18,8	23,5	26,1
B - 5	4,7	5,0	5,3	5,6	6,7	7,2	7,8	8,3	10,6	11,1	13,4	13,9	17,2	17,8	20,0	25,0	27,8
C - 6	5,2	5,5	5,8	6,1	7,3	7,9	8,5	9,1	11,6	12,2	14,6	15,2	18,9	19,5	21,9	27,4	30,4
A - 5	5,3	5,6	5,9	6,3	7,5	8,1	8,8	9,4	11,9	12,5	15,0	15,6	19,4	20,0	22,5	28,2	31,3
B - 6	5,9	6,3	6,6	7,0	8,3	9,0	9,7	10,4	13,2	13,9	16,7	17,4	21,6	22,3	25,0	31,3	34,8
A - 6	6,6	7,0	7,4	7,8	9,4	10,2	11,0	11,7	14,9	15,6	18,8	19,6	24,3	25,0	28,2	35,2	39,1

SEED DISTRIBUTION SYSTEM

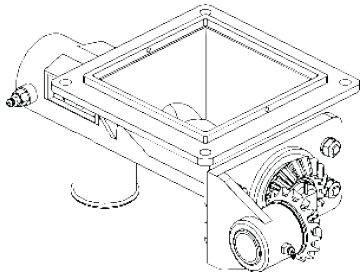
SEED DISTRIBUTION SYSTEM

Seed Distribution Table per linear meter - SPE Top Line Flex																	
Ratchet Shaft output gear (Z3)								25	Input Gear of Speed Box (Z4)								20
Combination	Number of Holes of the Seed Distributor Disc																
	17	18	19	20	24	26	28	30	38	40	48	50	62	64	72	90	100
F - 1	2,1	2,2	2,3	2,4	2,9	3,1	3,4	3,6	4,6	4,8	5,8	6,0	7,5	7,7	8,7	10,9	12,1
F - 2	2,3	2,4	2,6	2,7	3,3	3,5	3,8	4,1	5,2	5,4	6,5	6,8	8,4	8,7	9,8	12,2	13,6
E - 1	2,6	2,7	2,9	3,0	3,6	3,9	4,2	4,5	5,7	6,0	7,2	7,5	9,4	9,7	10,9	13,6	15,1
F - 3	2,6	2,8	2,9	3,1	3,7	4,0	4,3	4,7	5,9	6,2	7,5	7,8	9,6	9,9	11,2	14,0	15,5
E - 2	2,9	3,1	3,2	3,4	4,1	4,4	4,8	5,1	6,5	6,8	8,1	8,5	10,5	10,9	12,2	15,3	17,0
D - 1	3,1	3,3	3,4	3,6	4,3	4,7	5,1	5,4	6,9	7,2	8,7	9,1	11,2	11,6	13,0	16,3	18,1
F - 4	3,1	3,3	3,4	3,6	4,3	4,7	5,1	5,4	6,9	7,2	8,7	9,1	11,2	11,6	13,0	16,3	18,1
E - 3	3,3	3,5	3,7	3,9	4,7	5,0	5,4	5,8	7,4	7,8	9,3	9,7	12,0	12,4	14,0	17,5	19,4
D - 2	3,5	3,7	3,9	4,1	4,9	5,3	5,7	6,1	7,7	8,1	9,8	10,2	12,6	13,0	14,7	18,3	20,4
C - 1	3,6	3,8	4,0	4,2	5,1	5,5	5,9	6,3	8,0	8,5	10,1	10,6	13,1	13,5	15,2	19,0	21,1
F - 5	3,7	3,9	4,1	4,3	5,2	5,7	6,1	6,5	8,3	8,7	10,4	10,9	13,5	13,9	15,6	19,6	21,7
E - 4	3,8	4,1	4,3	4,5	5,4	5,9	6,3	6,8	8,6	9,1	10,9	11,3	14,0	14,5	16,3	20,4	22,6
D - 3	4,0	4,2	4,4	4,7	5,6	6,1	6,5	7,0	8,8	9,3	11,2	11,6	14,4	14,9	16,8	21,0	23,3
C - 2	4,0	4,3	4,5	4,8	5,7	6,2	6,7	7,1	9,0	9,5	11,4	11,9	14,7	15,2	17,1	21,4	23,8
B - 1	4,1	4,3	4,6	4,8	5,8	6,3	6,8	7,2	9,2	9,7	11,6	12,1	15,0	15,5	17,4	21,7	24,1
A - 1	4,6	4,9	5,2	5,4	6,5	7,1	7,6	8,1	10,3	10,9	13,0	13,6	16,8	17,4	19,6	24,4	27,2
A - 2	5,2	5,5	5,8	6,1	7,3	7,9	8,6	9,2	11,6	12,2	14,7	15,3	18,9	19,6	22,0	27,5	30,6
B - 3	5,3	5,6	5,9	6,2	7,5	8,1	8,7	9,3	11,8	12,4	14,9	15,5	19,2	19,9	22,4	27,9	31,0
C - 4	5,4	5,7	6,0	6,3	7,6	8,2	8,9	9,5	12,0	12,7	15,2	15,8	19,6	20,3	22,8	28,5	31,7
D - 5	5,5	5,9	6,2	6,5	7,8	8,5	9,1	9,8	12,4	13,0	15,6	16,3	20,2	20,9	23,5	29,3	32,6
E - 6	5,8	6,1	6,5	6,8	8,1	8,8	9,5	10,2	12,9	13,6	16,3	17,0	21,1	21,7	24,4	30,6	34,0
A - 3	5,9	6,3	6,6	7,0	8,4	9,1	9,8	10,5	13,3	14,0	16,8	17,5	21,7	22,4	25,1	31,4	34,9
B - 4	6,2	6,5	6,9	7,2	8,7	9,4	10,1	10,9	13,8	14,5	17,4	18,1	22,5	23,2	26,1	32,6	36,2
C - 5	6,5	6,8	7,2	7,6	9,1	9,9	10,6	11,4	14,5	15,2	18,3	19,0	23,6	24,3	27,4	34,2	38,0
D - 6	6,9	7,3	7,7	8,1	9,8	10,6	11,4	12,2	15,5	16,3	19,6	20,4	25,3	26,1	29,3	36,7	40,7
A - 4	6,9	7,3	7,7	8,1	9,8	10,6	11,4	12,2	15,5	16,3	19,6	20,4	25,3	26,1	29,3	36,7	40,7
B - 5	7,4	7,8	8,3	8,7	10,4	11,3	12,2	13,0	16,5	17,4	20,9	21,7	26,9	27,8	31,3	39,1	43,5
C - 6	8,1	8,6	9,0	9,5	11,4	12,4	13,3	14,3	18,1	19,0	22,8	23,8	29,5	30,4	34,2	42,8	47,5
A - 5	8,3	8,8	9,3	9,8	11,7	12,7	13,7	14,7	18,6	19,6	23,5	24,4	30,3	31,3	35,2	44,0	48,9
B - 6	9,2	9,8	10,3	10,9	13,0	14,1	15,2	16,3	20,6	21,7	26,1	27,2	33,7	34,8	39,1	48,9	54,3
A - 6	10,4	11,0	11,6	12,2	14,7	15,9	17,1	18,3	23,2	24,4	29,3	30,6	37,9	39,1	44,0	55,0	61,1

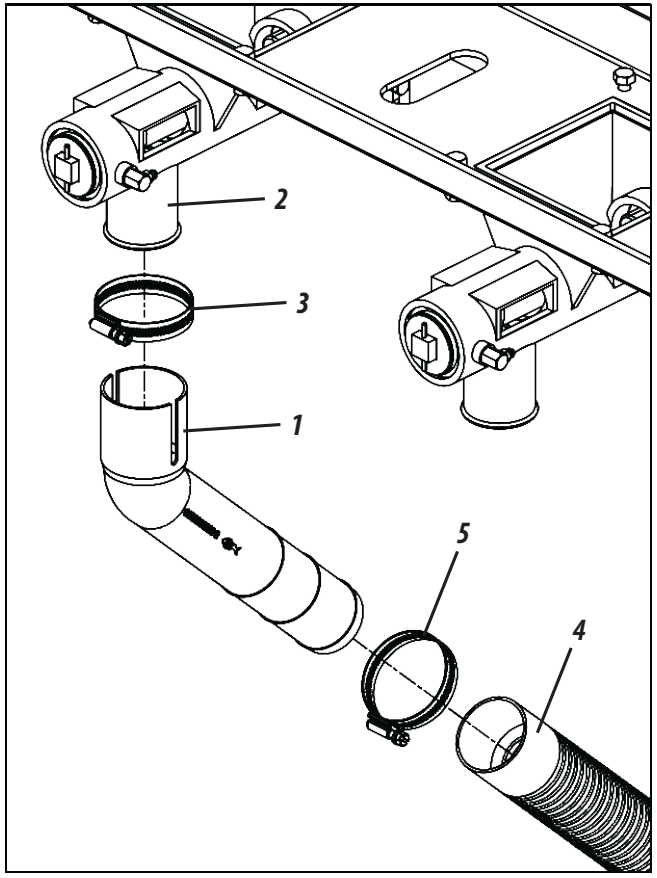
POLYETHYLENE FERTILIZER HOPPER

FERTILIZER CONDUCTOR - INDEPENDENT SYSTEM

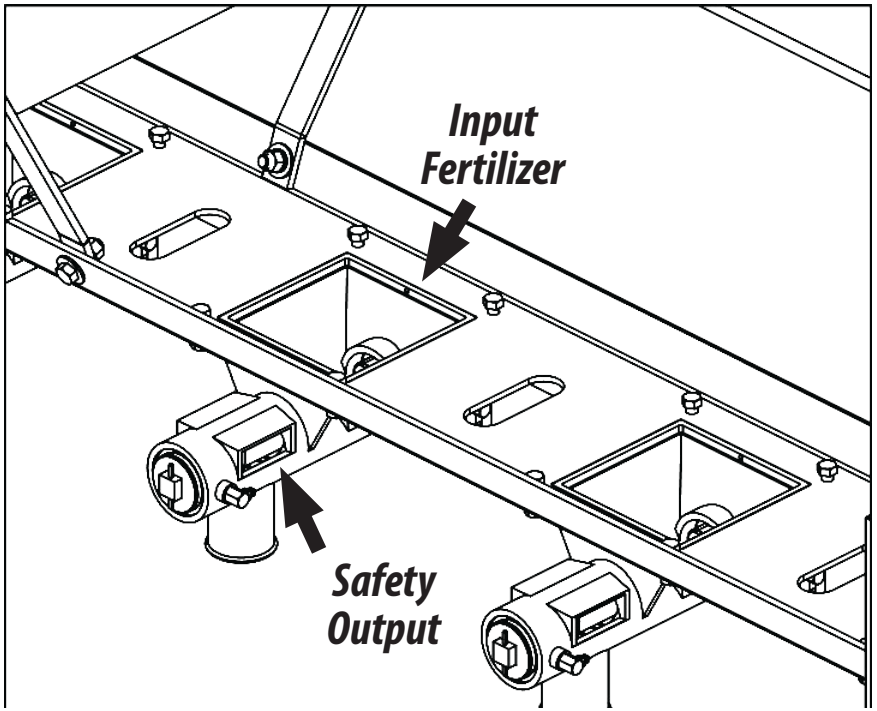
- To carry the fertilizer from the distributor to the ground, fit the spouts in degree (1) to the outlets of the distributor (2) through the clips (3). Then place the hoses (4) in the spouts in degree (1) through the clips (5).



CROSS CONDUCTOR



- The independent distribution system has safety outputs that guarantee the smooth functioning of the system without damaging it. In case of clogging of the hose and the doser, clean the doser until the end of the hose near the furrow or double disc, as the system can clog by roots, pieces of plastic and other objects.



⚠ ATTENTION

Check the distributors and hoses daily and clean them. When the fertilizer has impurities or is wet, clean it more often.

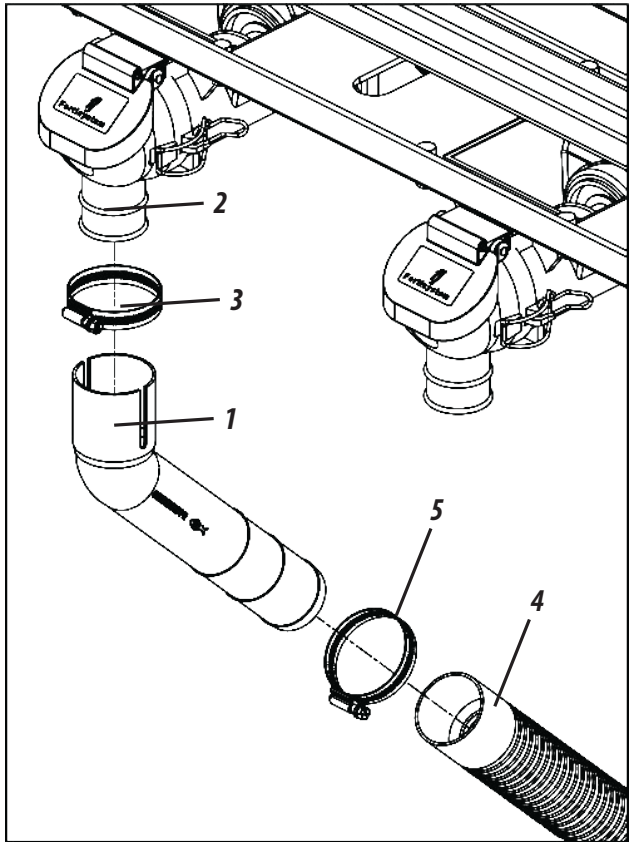
FERTILIZER DISTRIBUTION SYSTEM

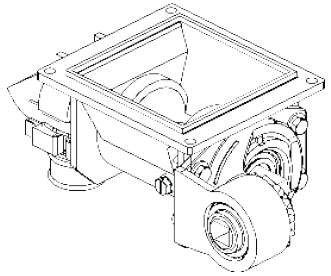
FERTILIZER DISTRIBUTION SYSTEM

POLYETHYLENE FERTILIZER HOPPER

FERTILIZER CONDUCTOR - FERTISYSTEM SYSTEM

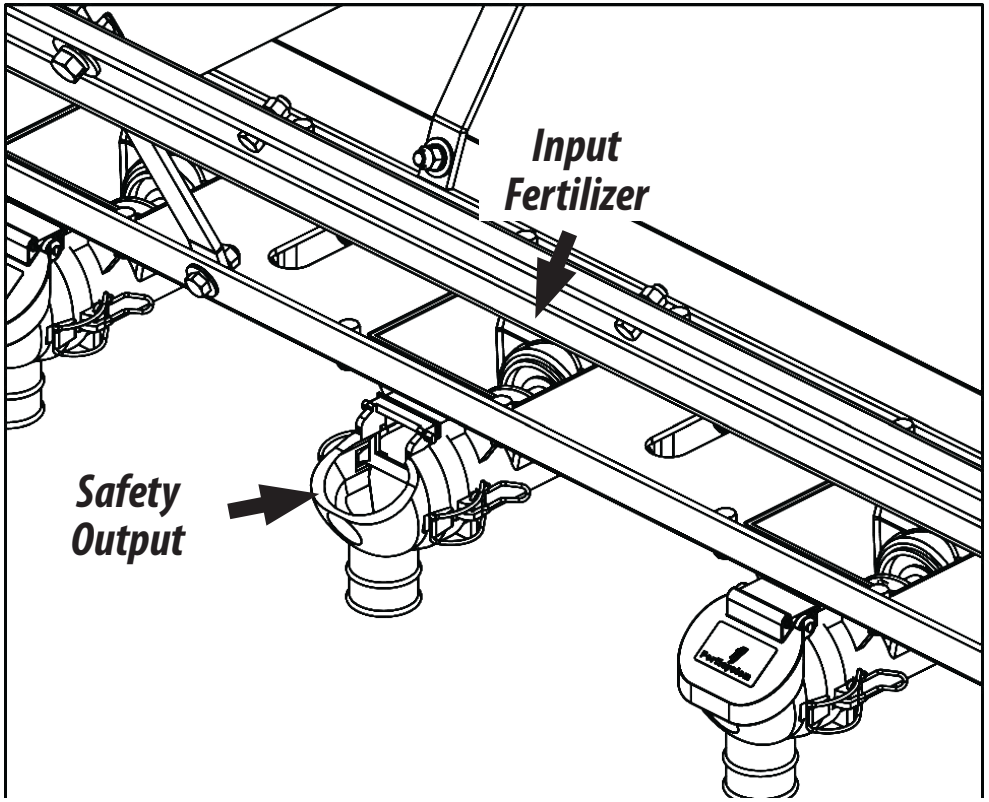
- To carry the fertilizer from the distributor to the ground, fit the spouts in degree (1) to the fertisystem conductor outlets (2) through the clips (3). Then place the hoses (4) on the spouts in degree (1) through the clips (5).





FERTISYSTEM CONDUCTOR

- The fertisystem distribution system has safety outputs that guarantee the smooth operation of the system without damaging it. In case of clogging of the hose and the doser, clean the doser until the end of the hose near the furrow or double disc, as the system can clog by roots, pieces of plastic and other objects.



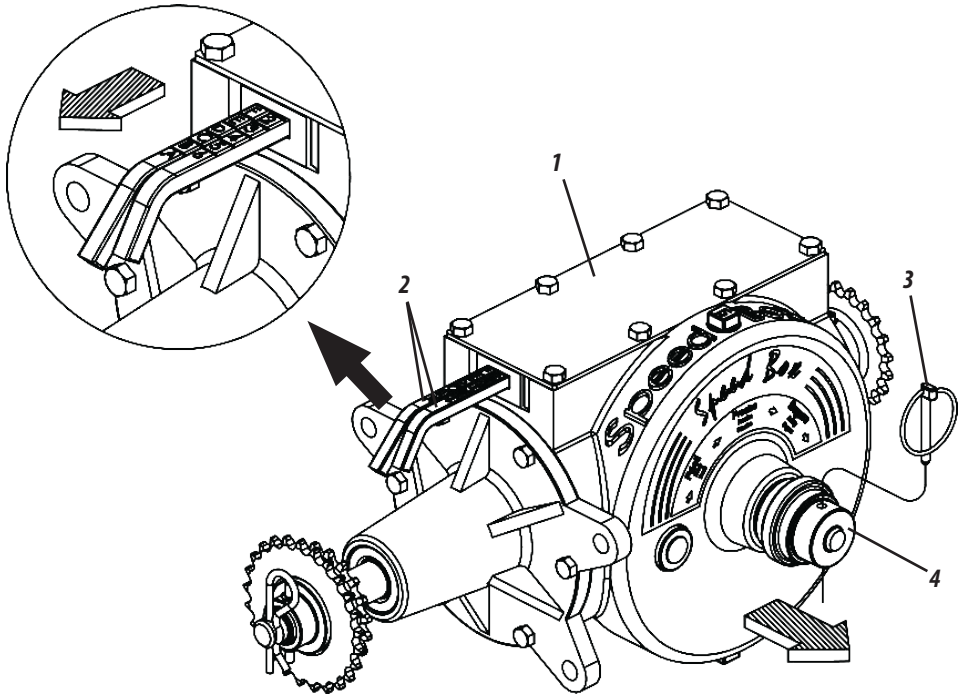
⚠ ATTENTION

Check the distributors and hoses daily and clean them. When the fertilizer has impurities or is wet, clean it more often.

SPEED BOX

The seeders are equipped with the Speed Box system (1), which activates the distribution system with simple ADJUSTMENTS, guaranteeing the exchange of fast rotations. To adjust the seeds, proceed as follows:

1- Select the desired quantity in the Tables and check the corresponding combination on the levers (2). Example: Position F2 in the Table, indicates that the lever with letters must be in the "F" position and the lever with numbers must be in the "2" position.

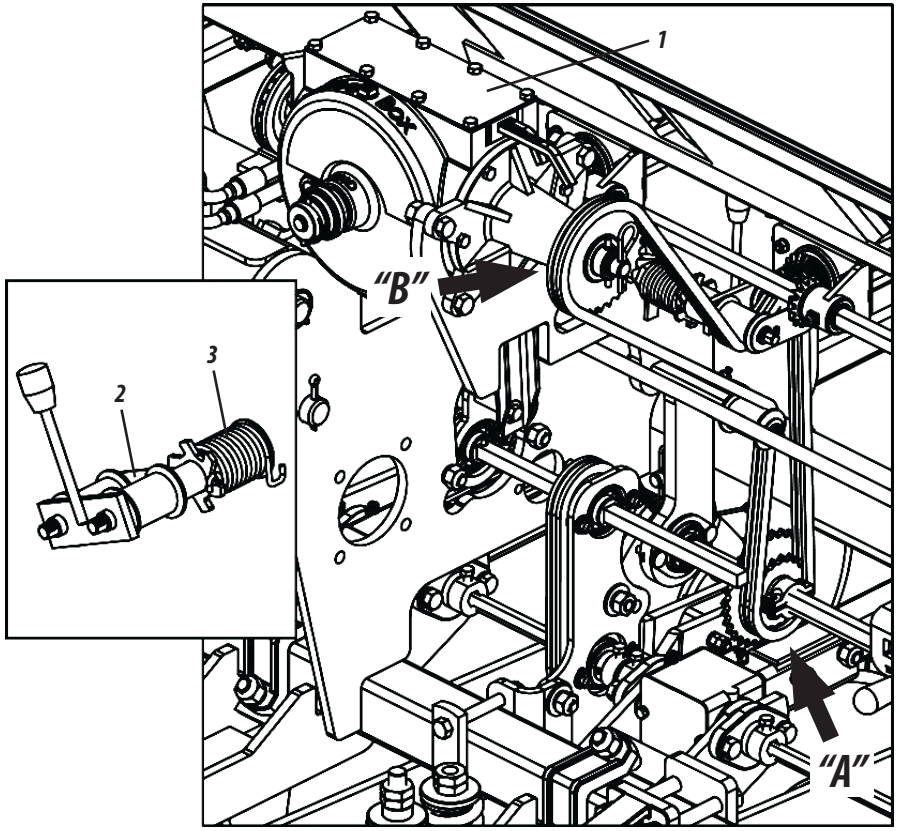


2- To move the levers, remove the lock (3), pull the handle (4), then adjust the levers as shown above. When finishing the combination, return the handle (4) and replace the lock (3).

ADJUSTMENT FOR FERTILIZER DISTRIBUTION

1- The fertilizer is adjusted through the Speed Box (1). To obtain more adjustments, invert the current in the motor gears **"A"** and moved **"B"**.

2- After changing the gears, check the chain tension. The tensioner (2) is equipped with a torsion spring (3) for greater flexibility. If more pressure is needed on the stretcher, proceed as instructed **in Figure 57, page 58.**



FERTILIZER DISTRIBUTION SYSTEM

FERTILIZER DISTRIBUTION SYSTEM

Obs: Spring with 2 "pitch

Fertilizer Distribution Table - SPE Top Line Flex															
Ratchet hex shaft gear				*20*		*Speed Box Input Gear*								*31*	
Combination	*Grams 50 m*	*415*	*430*	*450*	*500*	*550*	*600*	*650*	*700*	*750*	*800*	*850*	*900*	*950*	*1000*
F - 1	313	151	146	139	125	114	104	96	89	83	78	74	70	66	63
F - 2	352	170	164	157	141	128	117	108	101	94	88	83	78	74	70
E - 1	391	189	182	174	157	142	130	120	112	104	98	92	87	82	78
F - 3	402	194	187	179	161	146	134	124	115	107	101	95	89	85	80
E - 2	440	212	205	196	176	160	147	135	126	117	110	104	98	93	88
D - 1	470	226	218	209	188	171	157	144	134	125	117	110	104	99	94
F - 4	470	226	218	209	188	171	157	144	134	125	117	110	104	99	94
E - 3	503	242	234	224	201	183	168	155	144	134	126	118	112	106	101
D - 2	528	255	246	235	211	192	176	163	151	141	132	124	117	111	106
C - 1	548	264	255	243	219	199	183	169	157	146	137	129	122	115	110
F - 5	563	272	262	250	225	205	188	173	161	150	141	133	125	119	113
E - 4	587	283	273	261	235	213	196	181	168	157	147	138	130	124	117
D - 3	604	291	281	268	241	220	201	186	172	161	151	142	134	127	121
C - 2	616	297	287	274	247	224	205	190	176	164	154	145	137	130	123
B - 1	626	302	291	278	250	228	209	193	179	167	157	147	139	132	125
A - 1	704	339	328	313	282	256	235	217	201	188	176	166	157	148	141
A - 2	792	382	369	352	317	288	264	244	226	211	198	186	176	167	158
B - 3	805	388	374	358	322	293	268	248	230	215	201	189	179	169	161
C - 4	822	396	382	365	329	299	274	253	235	219	205	193	183	173	164
D - 5	845	407	393	376	338	307	282	260	241	225	211	199	188	178	169
E - 6	880	424	409	391	352	320	293	271	252	235	220	207	196	185	176
A - 3	906	436	421	402	362	329	302	279	259	241	226	213	201	191	181
B - 4	939	453	437	417	376	341	313	289	268	250	235	221	209	198	188
C - 5	986	475	459	438	394	359	329	303	282	263	247	232	219	208	197
D - 6	1056	509	491	470	423	384	352	325	302	282	264	249	235	222	211
A - 4	1056	509	491	470	423	384	352	325	302	282	264	249	235	222	211
B - 5	1127	543	524	501	451	410	376	347	322	301	282	265	250	237	225
C - 6	1233	594	573	548	493	448	411	379	352	329	308	290	274	259	247
A - 5	1268	611	590	563	507	461	423	390	362	338	317	298	282	267	254
B - 6	1409	679	655	626	563	512	470	433	402	376	352	331	313	297	282
A - 6	1585	764	737	704	634	576	528	488	453	423	396	373	352	334	317

Fertilizer Distribution Table- SPE Top Line Flex															
Ratchet hex shaft gear				31		Speed Box Input Gear								20	
Combination	Grams 50 m	415	430	450	500	550	600	650	700	750	800	850	900	950	1000
F - 1	752	362	350	334	301	273	251	231	215	201	188	177	167	158	150
F - 2	846	408	394	376	338	308	282	260	242	226	212	199	188	178	169
E - 1	940	453	437	418	376	342	313	289	269	251	235	221	209	198	188
F - 3	967	466	450	430	387	352	322	298	276	258	242	228	215	204	193
E - 2	1058	510	492	470	423	385	353	325	302	282	264	249	235	223	212
D - 1	1128	544	525	501	451	410	376	347	322	301	282	265	251	237	226
F - 4	1128	544	525	501	451	410	376	347	322	301	282	265	251	237	226
E - 3	1209	582	562	537	483	440	403	372	345	322	302	284	269	254	242
D - 2	1269	612	590	564	508	461	423	390	363	338	317	299	282	267	254
C - 1	1316	634	612	585	526	479	439	405	376	351	329	310	292	277	263
F - 5	1354	652	630	602	541	492	451	417	387	361	338	319	301	285	271
E - 4	1410	680	656	627	564	513	470	434	403	376	353	332	313	297	282
D - 3	1450	699	675	645	580	527	483	446	414	387	363	341	322	305	290
C - 2	1481	714	689	658	592	538	494	456	423	395	370	348	329	312	296
B - 1	1504	725	700	668	602	547	501	463	430	401	376	354	334	317	301
A - 1	1692	815	787	752	677	615	564	521	483	451	423	398	376	356	338
A - 2	1904	917	885	846	761	692	635	586	544	508	476	448	423	401	381
B - 3	1934	932	899	859	774	703	645	595	553	516	483	455	430	407	387
C - 4	1974	951	918	877	790	718	658	607	564	526	494	465	439	416	395
D - 5	2031	979	944	902	812	738	677	625	580	541	508	478	451	427	406
E - 6	2115	1019	984	940	846	769	705	651	604	564	529	498	470	445	423
A - 3	2176	1048	1012	967	870	791	725	669	622	580	544	512	483	458	435
B - 4	2256	1087	1049	1003	902	820	752	694	645	602	564	531	501	475	451
C - 5	2369	1142	1102	1053	948	861	790	729	677	632	592	557	526	499	474
D - 6	2538	1223	1181	1128	1015	923	846	781	725	677	635	597	564	534	508
A - 4	2538	1223	1181	1128	1015	923	846	781	725	677	635	597	564	534	508
B - 5	2707	1305	1259	1203	1083	985	902	833	774	722	677	637	602	570	541
C - 6	2961	1427	1377	1316	1184	1077	987	911	846	790	740	697	658	623	592
A - 5	3046	1468	1417	1354	1218	1108	1015	937	870	812	761	717	677	641	609
B - 6	3384	1631	1574	1504	1354	1231	1128	1041	967	902	846	796	752	712	677
A - 6	3807	1835	1771	1692	1523	1384	1269	1171	1088	1015	952	896	846	802	761

Obs: Spring with 2 "pitch

FERTILIZER DISTRIBUTION SYSTEM

CALCULATION

PRACTICAL CALCULATION FOR FERTILIZER DISTRIBUTION

- To distribute other amounts of fertilizer in spacing and areas other than those shown in the Distribution Tables, use the formula below. To do this, proceed as follows:

1- Determine the line spacing and the amount of fertilizer to be distributed per bushel (Aa) or hectare (Ha).

2- ***Example: S***eeder with a spacing of 0.45 m, to distribute 500 kg of fertilizer per Ha, use the formula below:

Fórmula: $X = \frac{E \times Q \times D}{A}$

Formula Data:
E = Line spacing (m)
Q = Amount of fertilizer to be distributed [kg]
A = Area to be fertilized [m^2]
D = Distance of 50 meters (teste)
X = Fertilizer grams in 50 meters

Resolv: $X = \frac{0{,}45 \times 500 \times 50}{10.000}$

$X = 22.50 \times 50 = 1.125$

X = 1.125 grams at 50 meters per line.

NOTE

When obtaining the result, adjust the seeder to distribute the quantity found, or the one closest to the predetermined space for the test.

PRACTICAL TEST TO MEASURE THE AMOUNT OF FERTILIZER AND SEED DISTRIBUTION

1- For greater precision in the distribution of fertilizer or seed, test the quantity to be distributed at the planting site, since for each land there is a condition. Proceed as follows:

2- As far as possible, always use the same tractor and operator who will carry out the planting.

3- Always check and maintain the correct calibration in the seeder tires. (70 lb / in^2 for each tire).

4- Mark the test distance in the Table, we chose 50 linear meters.

5- Fill the seeder tanks at least halfway. Go on average 10 meters outside the test area, so that the fertilizer and seeds fill the dosers.

6- Seal the exit of the seed spouts and place containers for collection in the fertilizer outlets. Move the tractor in the marked area, always at the same speed that you will plant from 5 to 7 km / h.

7- After going through the marked space, remove the seal from the seed spout and collect them for counting and also collect the fertilizer to weigh the collected amount. If necessary, increase or decrease the amount of seed and fertilizer to be distributed, check the Table.

8- When reaching the desired quantity, still in the area, move the tractor at the same speed, however, letting the fertilizer and seed reach the soil to check for uniformity in distribution later.

IMPORTANT

We suggest that a practical test be carried out on the distribution of fertilizer and seed, over 50 meters, to later compare the results of the fertilizer and the seed.

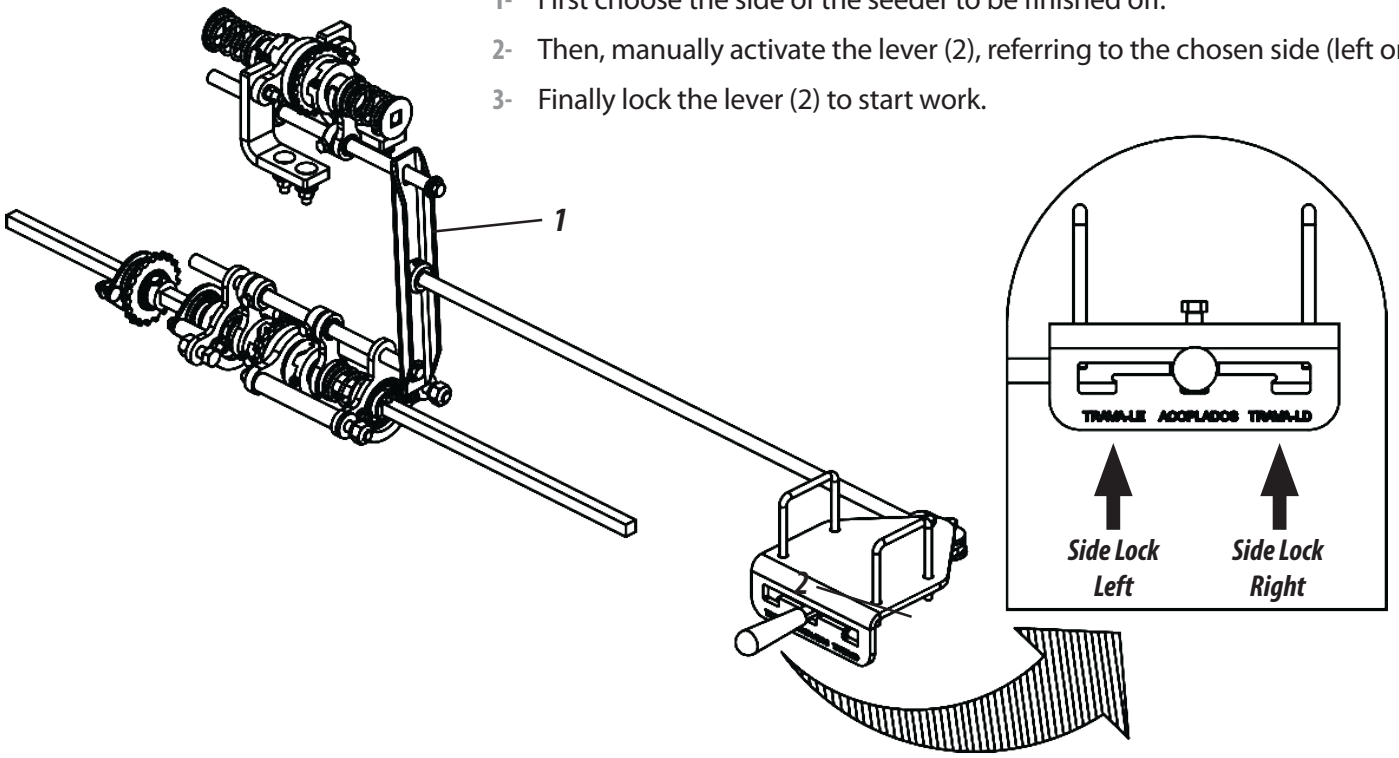
ATTENTION

The variation in working speed affects the uniform distribution of seeds.
When changing the seed lot or the fertilizer manufacturer, it is necessary to check again.
After the first day of planting, double check all ADJUSTMENTS.

EINDING SYSTEM

The **SPE Top Line** seeder has a finishing system (1), allows planting with only one side of the machine, that is, half of the lines. To activate the locking system, proceed as follows:

1- First choose the side of the seeder to be finished off.
2- Then, manually activate the lever (2), referring to the chosen side (left or right).
3- Finally lock the lever (2) to start work.

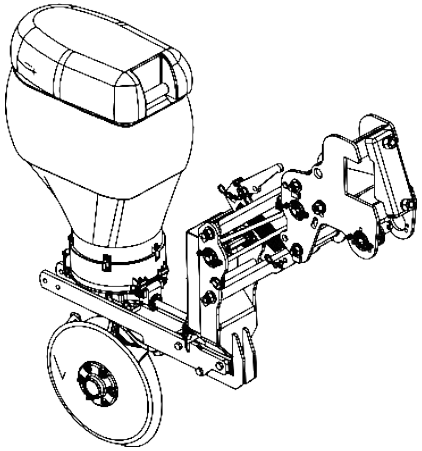


ATTENTION

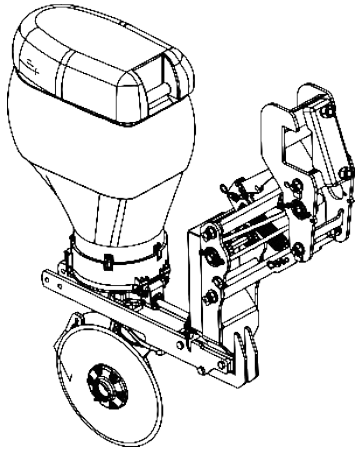
Before adding the lever (2), get off the tractor and make sure that the seeder is stationary. Do not operate the lever (2) with the seeder in motion. Ignoring this warning could result in serious accidents.

PLANTERS ROWS

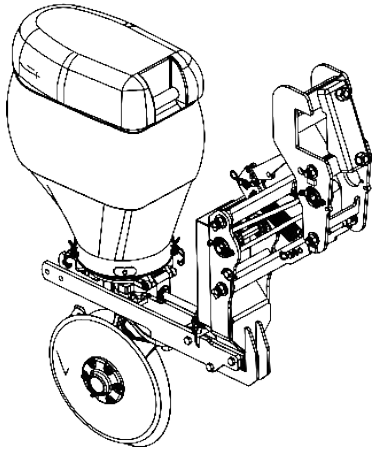
PLANTING ROW MODELS



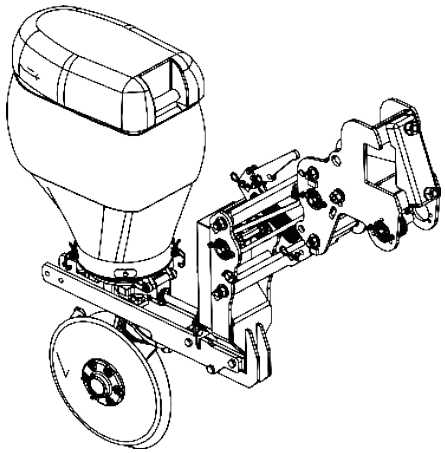
Left large pantographic line
Titanium (2019)



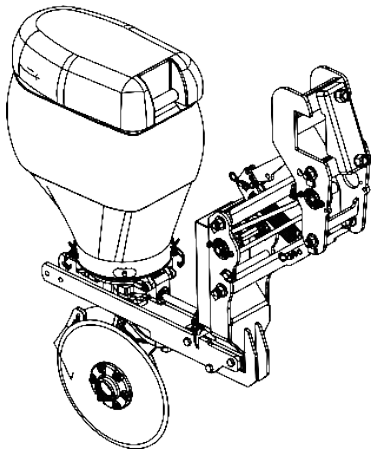
Right small pantographic line
Titanium (2019)



Left small pantographic line
Baldan (2019)



Left large pantographic line
Baldan (2019)



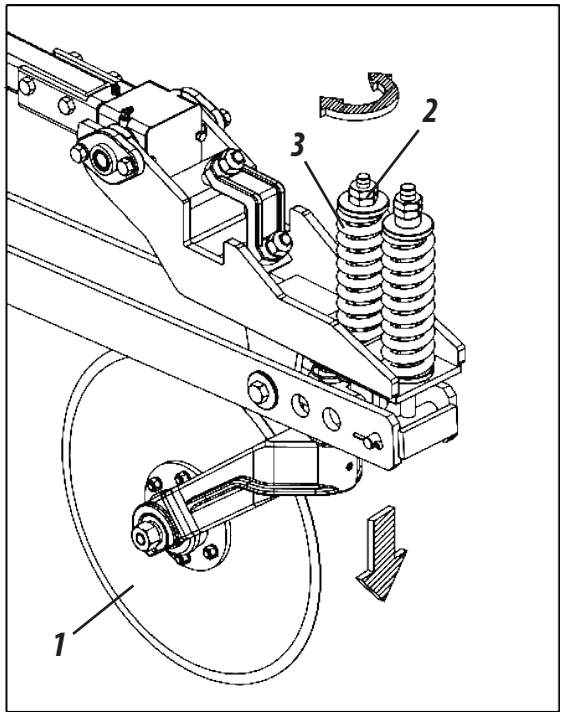
Right small pantographic line
Baldan (2019)

CUTTING DISC PRESSURES ADJUSTMENT

To adjust the pressure of the cutting disc (1), proceed as follows:

1- Turn the nut (2) clockwise for greater pressure on the spring (3).

2- Turn the nut (2) counterclockwise to lower the spring pressure (3).



PRESSURE AJUSTMENT

MORE SPRING PRESSURE:

The greater the pressure of the cutting disc on the ground.

LESS SPRING PRESSURE:

Lower the pressure of the cutting disc on the ground.

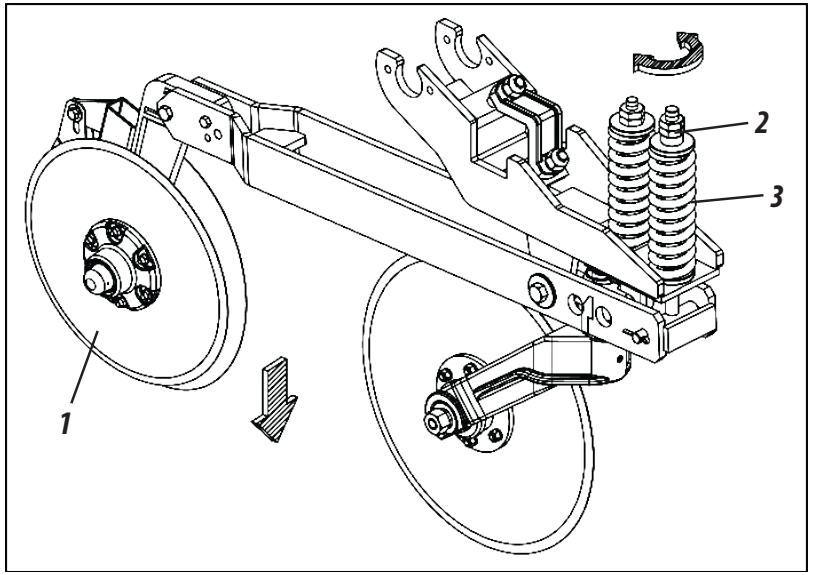
ATTENTION | ***When adjusting the pressure of the cutting disc, take care not to cancel the articulating action of the cutting disc.***

FERTILIZER PRESSURE ADJUSTMENT

To adjust the pressure of the double fertilizer disc (1), proceed as follows:

1- Turn the nut (2) clockwise to increase the pressure on the spring (3).

2- For the nut (2) counterclockwise, for less pressure on the spring (3).



PRESSURE AJUSTMENT

MORE SPRING PRESSURE:

The greater the pressure of the cutting disc on the ground.

LESS SPRING PRESSURE:

Lower the pressure of the cutting disc on the ground.

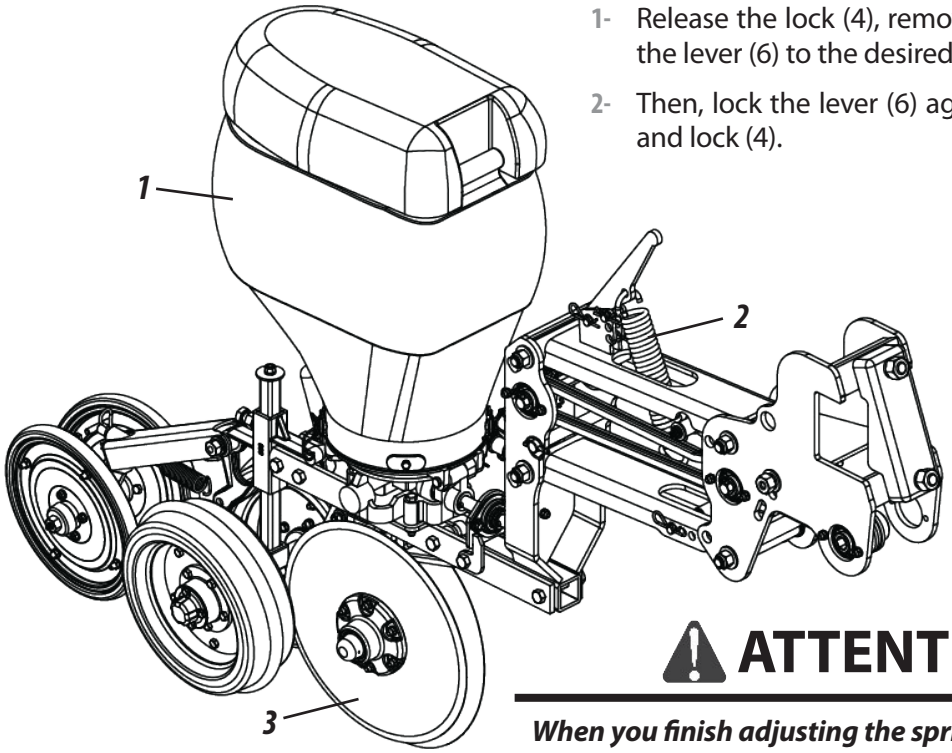
IMPORTANT | ***These ADJUSTMENTS giving greater or lesser pressure to the springs, should be made in the field before starting the works observing the type of soil to be worked, to obtain a better performance of the seeder.***

ROWS ADJUSTMENTS

ROWS ADJUSTMENTS

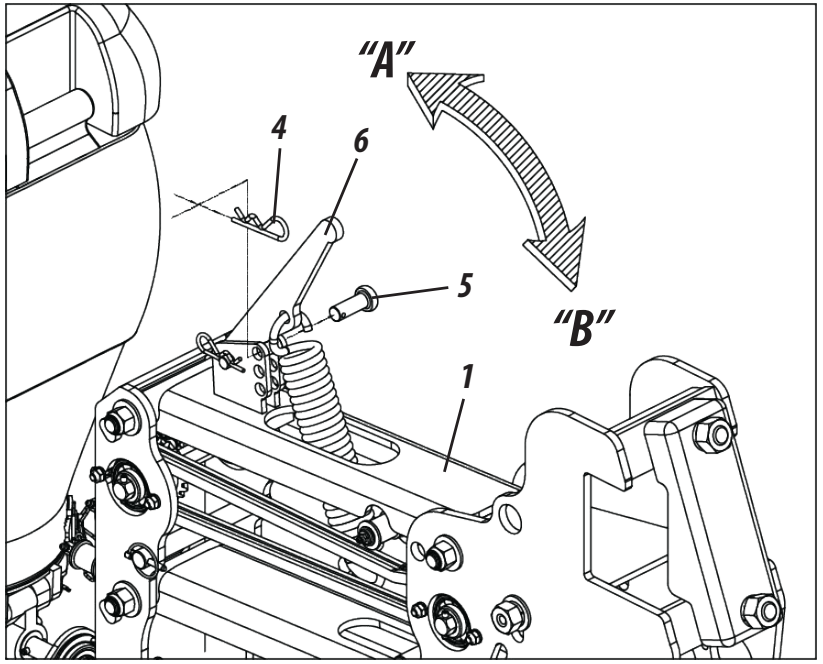
SPRING PRESSURE ADJUTMENT

The line (1) has a pressure spring (2) which, when adjusted by giving more or less pressure, will increase or decrease the force on the double disc (3). To adjust the spring pressure, proceed as follows:



1- Release the lock (4), remove the pin (5), move the lever (6) to the desired position.

2- Then, lock the lever (6) again, with the pin (5) and lock (4).



Position "A"	***More spring pressure***
Position "B"	***Less spring pressure***

ATTENTION

When you finish adjusting the spring, repeat this procedure on all lines.

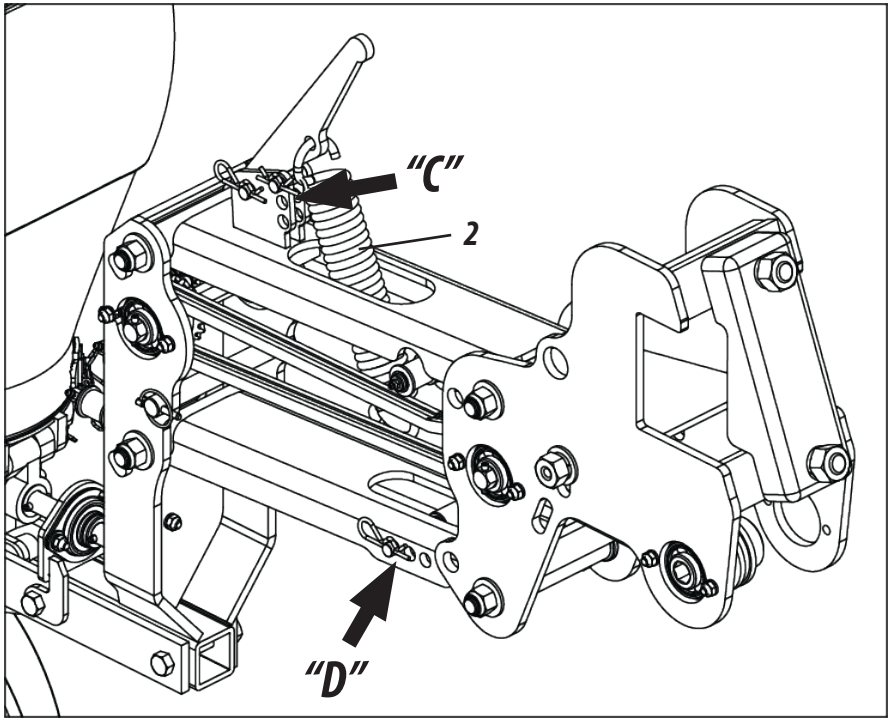
NOTE

Before adjusting the pressure of the springs with the lever (6), raise the seeder to reduce the physical effort of the operator.

IMPORTANT

Check the working depth of each row several times during planting, especially on land where there are variations in humidity, soil or others.

When adjusting the spring pressure (2), check which of the adjustment points **"C"** best meets your work needs. If these adjustments still do not reach the desired result, make a new adjustment now at the adjustment points **"D"**.



Points "C"	*1º Adjustment option*
Points "D"	*2º Adjustment option*

NOTE

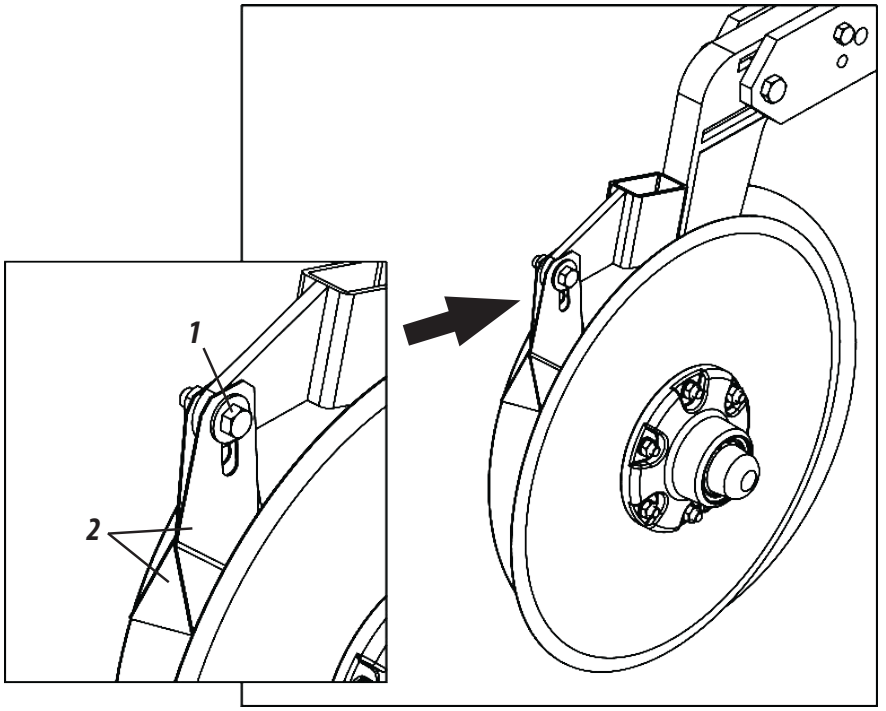
This adjustment, giving more or less pressure on the spring, should be done in the field before starting the work, observing the type of soil to be worked, to obtain a better performance of the seeder.

ROWS ADJUSTMENTS

ADJUSTMENT OF THE DOUBLE DISC

The double disc has cleaners that are flexible and adjustable to remove the dirt that sticks to the discs. To adjust the cleaners, proceed as follows:

1- Loosen the screw (1), adjust the wipers (2) to the ideal position and retighten the screw.



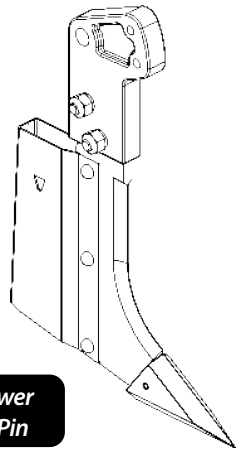
IMPORTANT

When adjusting the double disk cleaners in one of the lines, all the others must have the same adjustment, avoiding variations between them.

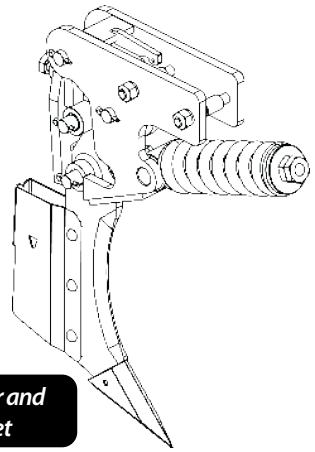
ROWS ADJUSTMENTS

FURROWERS MODELS

The **SPE Top Line Flex** seeder has 2 furrow models:



Furrower Fuse Pin

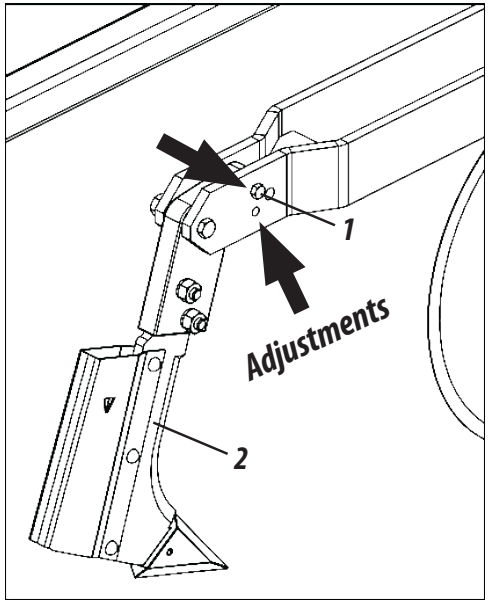


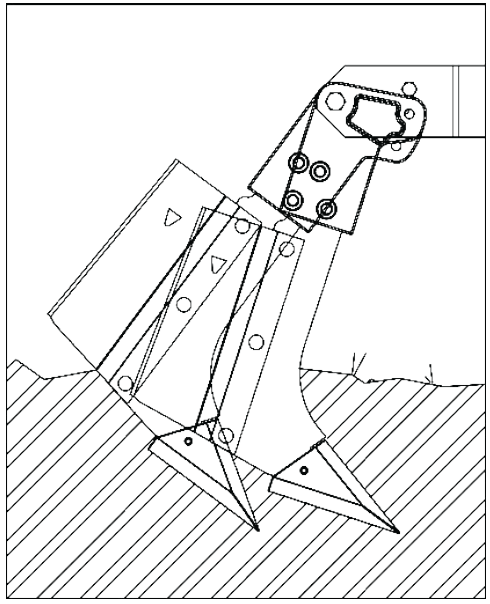
Disarming furrower and Automatic Reset

ADJUSTMENT OF THE ANGLE OF ATTACK OF THE FURROWER

The fertilizer furrow, has several work adjustments, to better adjust to the type of soil to be worked. To adjust the angle of attack of the furrowers, proceed as follows:

1- Remove the screw (1), articulate the groove (2) in the ideal setting and replace the screw (1), according to the drawings below.





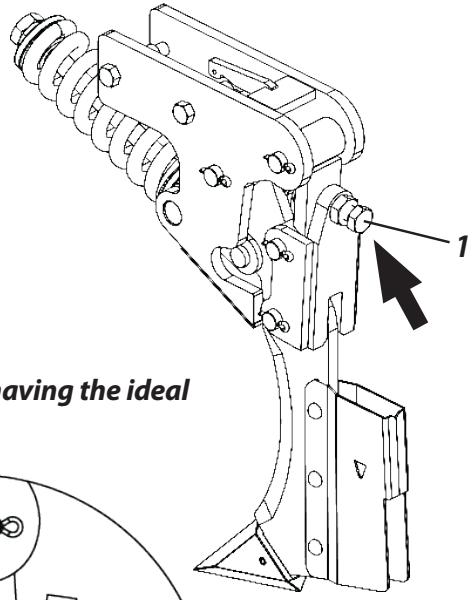
IMPORTANT

When adjusting the furrowers in one of the lines, all the others must have the same adjustment, avoiding variations between them.

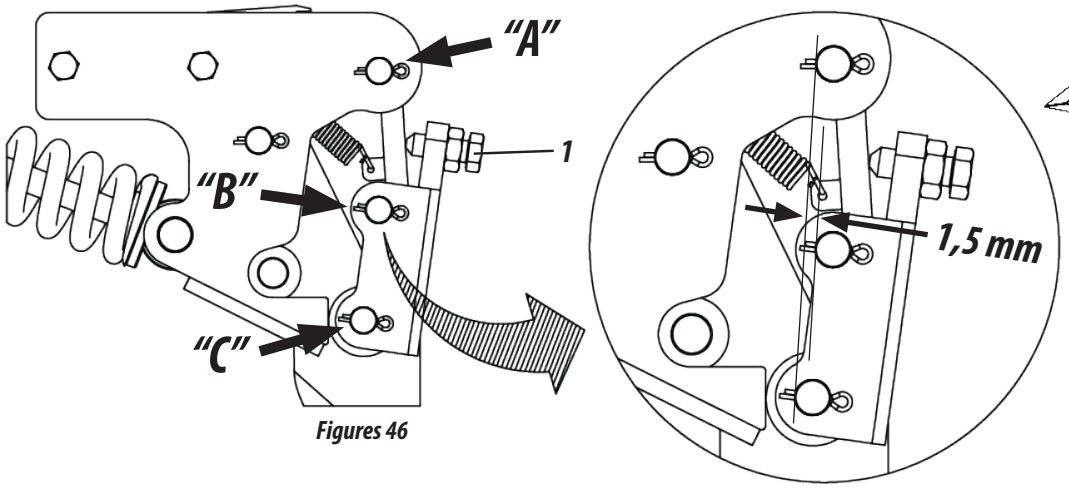
FURROW ADJUSTMENT FOR DISARMING AUTOMATIC - OPTIONAL

The furrower with automatic disarm has several adjustments of work, for better adjustment to the type of soil to be worked. To adjust the sensitivity of the plow disarm, proceed as follows:

FOR GREATER DISARM FURROWER.	*FOR LESS DISARM OF THE FURROWER.*
Tighten the screw (1) by turning clockwise.	*Loosen the screw (1) by turning it counterclockwise.*



ATTENTION | ***This adjustment is minimal, thus having the ideal adjustment with the screw or less.***

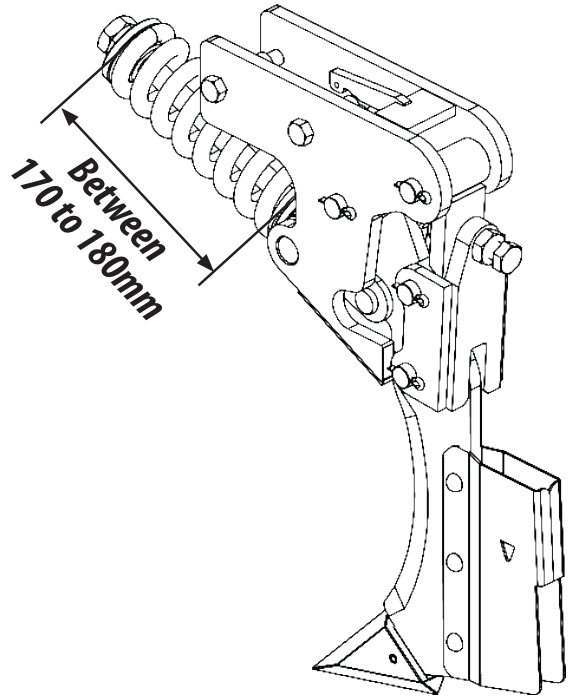


Figures 46

ATTENTION | ***When adjusting the screw (1), make sure that the three pins (A, B and C) are not in the same alignment so that the system is not rigid (without disarming). The minimum distance is 1.5 mm.***

REGULATING THE LOADING OF THE FURROWER - OPTIONAL

The furrower automatic reset system leaves the factory with the pre-load regulation in the spring determined that can vary between 170 to 180mm in its length.



ATTENTION

Do not proceed with other ADJUSTMENTS on the plow spring. If you are constantly disarming, check the soil conditions, which may be harder or have a high compaction rate.

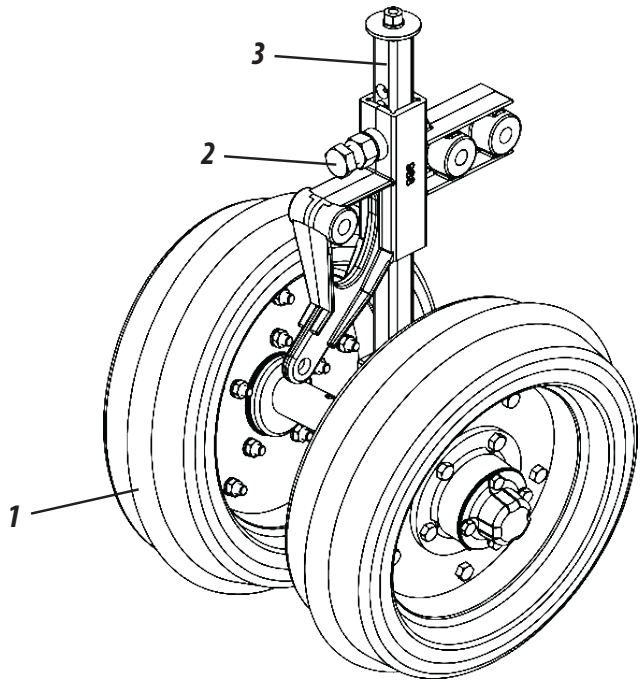
ROWS ADJUSTMENT

ROWS ADJUSTMENTS

DEPH LIMITER WHEEL

The seed depth control is individually regulated by the depth limiting wheels (1). To obtain these adjustments, proceed as follows:

1- Loosen the screw (2), make the ideal adjustment, raising or lowering the perforated bar (3). Then retighten the screw (2).



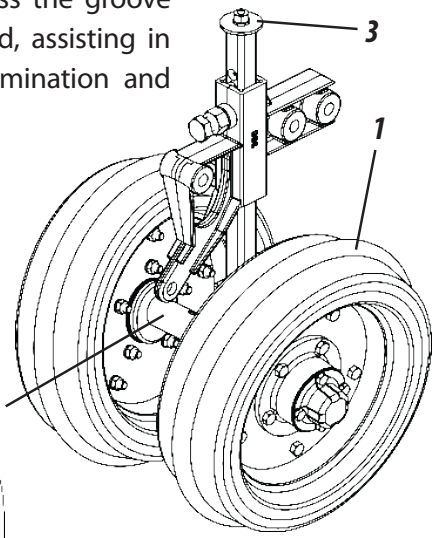
⚠ ATTENTION

When adjusting the depth limit wheel on one of the lines, all the others must have the same adjustment, avoiding variations between the lines.

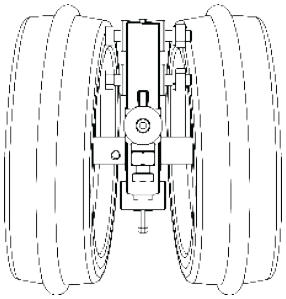
ADJUSTMENT OF THE ANGLE OF THE LIMITING WHEEL DEPTH

The angle of the depth limiting wheels (1), aims to press the groove causing the soil to be immediately replaced on the seed, assisting in compaction through angular regulation, facilitating germination and plant development.

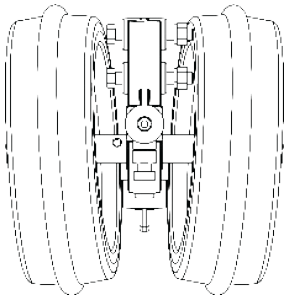
The wheels are fixed on an axis with the ends in degree (2), specially designed to allow compaction, depth control and burying the seed. To obtain these adjustments on the wheel, loosen the nut (3) and turn the axle (2), observing the movements of the wheel.



Wheel angle positions



ANGLE POSITION FULLY CLOSED (Less land on the seed).



ANGLE POSITION FULLY OPEN (More land on the seed).

⚠ ATTENTION

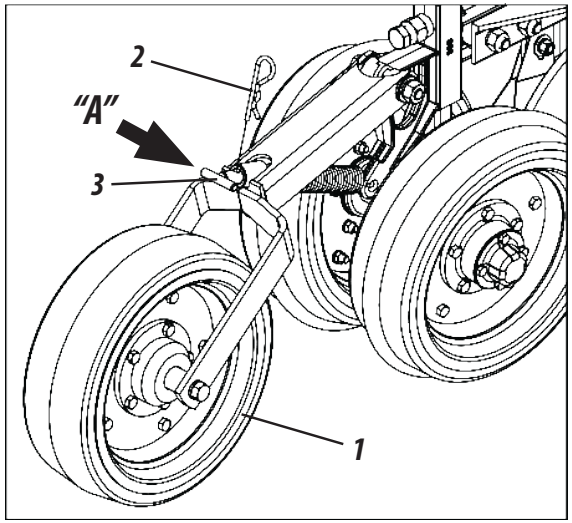
When finishing the adjustment, repeat the procedure on all lines, avoiding the variation between them. Consider the type of soil, seed and depth of planting, so as not to affect the free emergence of the plants.

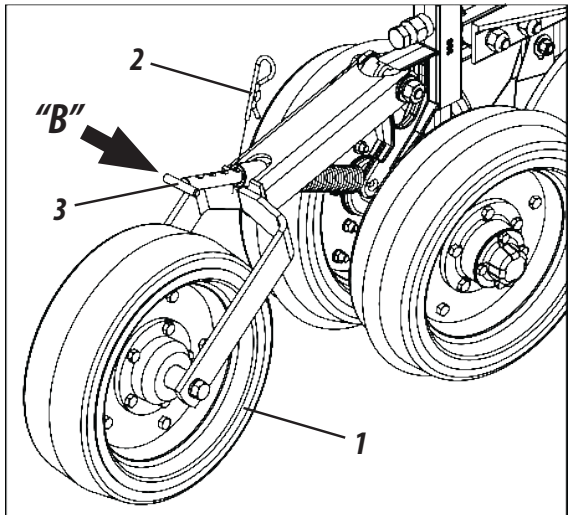
SMOOTH, CONCAVE WHEEL ADJUSTMENT AND CONVEX

The compacting wheels (smooth, concave and convex), have the purpose of pressing the groove causing the soil to be immediately placed on the seed, being possible to regulate the pressure to obtain the ideal compaction according to the type of soil, facilitating the germination of the plant. To adjust the pressure of the compacting wheels, proceed as follows:

- **HIGHER PRESSURE:** Remove the lock (2), pull the pin (3) out and lock again, **as shown in Detail "A".**

- **LOWER PRESSURE:** Remove the lock (2), push the pin (3) inwards and lock again, **as shown in Detail "B".**





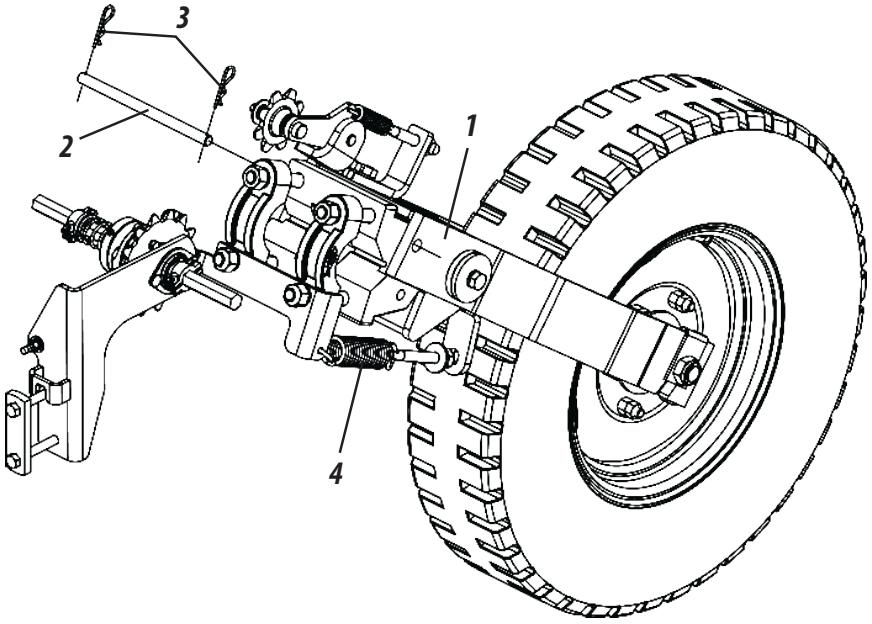
FIXATION AND ARTICULATION ADJUSTMENT OF THE WHEELS

The system of fixing and articulating the tires makes them free from the pressure of the springs of the pantographic system on the soil, thus allowing them to oscillate and follow the irregularities of the terrain, making the distribution of fertilizer and seed not interrupted.

1- For conventional planting, lock the wheels (1) through the pin (2) and locks (3).

2- For direct planting, the wheels operate free and if necessary, add 3/4 "of water to the tires.

3- The wheels (1) are equipped with traction springs (4), for greater adherence to the ground. Do not operate the seeder without them.



ROWS ADJUSTMENT

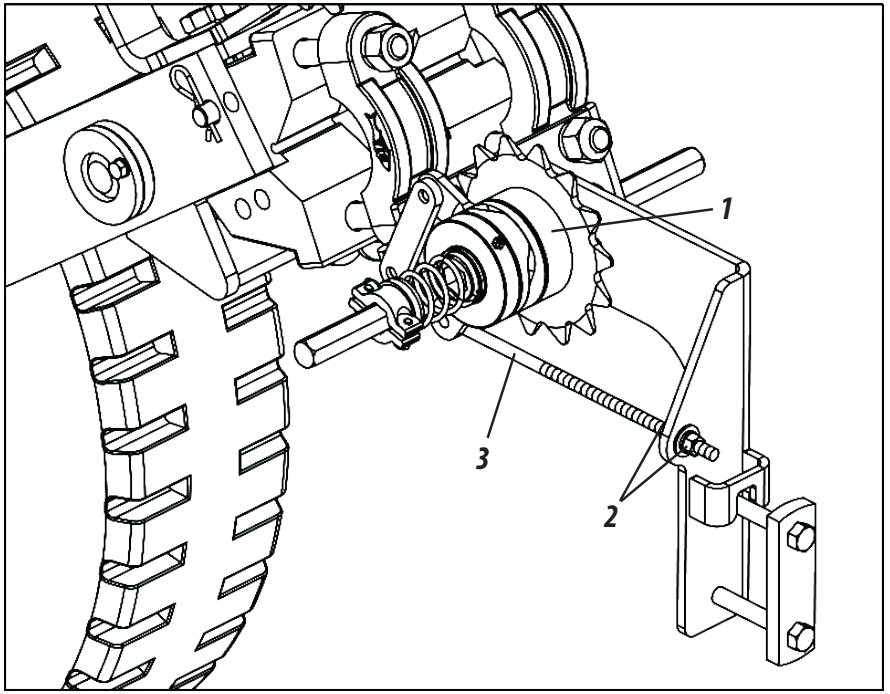
ADJUSTMENTS AND OPERATIONS

ADJUSTMENT OF THE RATCHET

In cases in which the shims are placed on the hydraulic cylinder to limit the depth of the discs and in cases where the locking system is to be activated, adjust the ratchet (1), thus ensuring the activation of the transmission system. To adjust the ratchet, proceed as follows:

1- Loosen the nuts and counter nuts (2), adjust the rod (3) for the correct activation of the ratchet release system (1).

2- Then, retighten the nuts and against nuts (2).



ATTENTION | ***Failure to comply with this regulation may result in the ratchet disarming.***

OPERATIONS

01 - After the first day of work with the seeder, retighten all screws and nuts. Check the condition of the pins, and latches.

02 - Do not maneuver or reverse with the lines lowered to the ground.

03 - Observe the lubrication intervals.

04 - When filling the tanks, check that there are no objects inside them, such as nuts, screws, etc. Always use seeds and fertilizer free of impurities.

OPERATIONS

05 - Always observe the functioning of the seed, fertilizer and also the ADJUSTMENTS distribution mechanisms established at the beginning of planting.

06 - Always keep the seeder level, the tractor drawbar must remain fixed and the working speed must remain constant.

07 - Always check the depth of the seed, the fertilizer and the pressure of the compacting wheels.

08 - Observe the position of the fertilizer in relation to the seed in the soil.

09 - When carrying out any checks or maintenance on the seeder, it must be lowered to the ground and the tractor engine shut down.

10 - Do not make sharp turns with the seeder during work, especially in no-till. Line components can be damaged.

11 - Do not partially activate the hydraulic cylinders. The drive for both raising and lowering the seeder must always be complete.

12 - The seeder has several ADJUSTMENTS but only local conditions can determine the best fit.

13 - Fill the seeder only at the job site.

14 - Do not transport or work with an overload on the seeder.

15 - The right and left side indications are made by looking at the sower from behind.

16 - The SPE Top Line seeder operates more efficiently in the 5 to 7 km / h range.

17 - In case of doubt, never operate or handle the seeder, consult the After Sales.

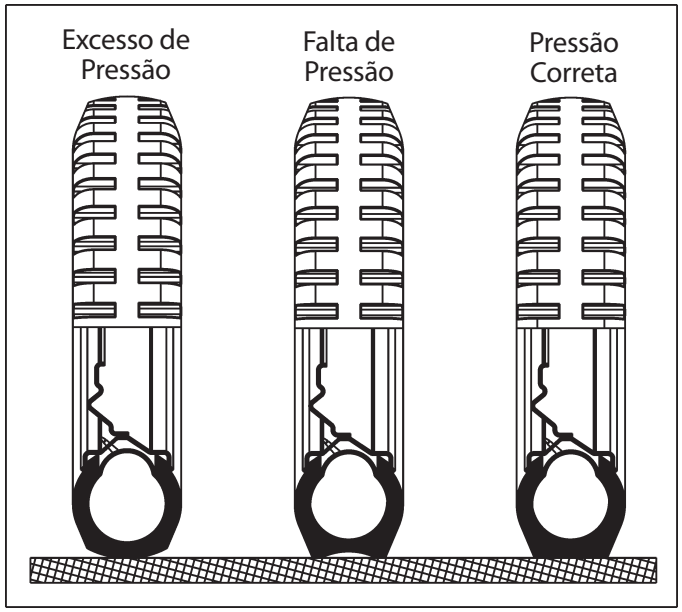
Telephone: 0800-152577 or email: posvenda@baldan.com.br

MAINTENANCE

WHEELS PRESSURE

1- The tires must always be correctly calibrated, avoiding premature wear due to excess or lack of pressure and ensuring precision in distribution.

2- The sowing tires should be calibrated to 70 lb / in^2 for each.



⚠ ATTENTION

When calibrating the seeder tires, do not exceed the recommended calibration. Always keep tires with the same calibration 70lb / in^2, to avoid wear and maintain uniformity of planting.

LUBRICATION

3- Lubrication is essential for good performance and longer durability of the moving parts of the seeder, contributing to savings in maintenance costs.

4- Before starting the operation, carefully lubricate all grease fittings, always observing the lubrication intervals on the following pages. Make sure the quality of the lubricant, as to its efficiency and purity, avoiding using products contaminated by water, earth and other agents.

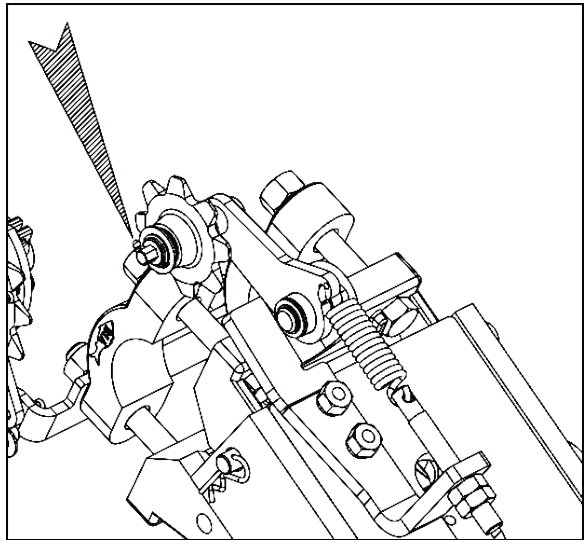
GREASE TABLE AND EQUIVALENTS

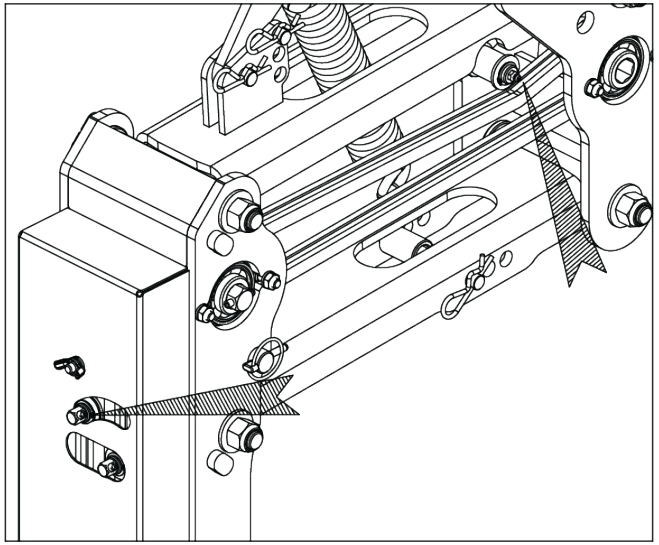
MANUFACTURER	*RECOMMENDED Grease TYPE*
Petrobrás	Lubrax GMA 2
Atlantic	Litholine MP 2
Ipiranga	Super Graxa Ipiranga Ipíranga Super Graxa 2 Ipiflex 2
Castrol	LM 2
Mobil	Mobilgrease MP 77
Texaco	Marfak 2 Agrotex 2
Shell	Retinax A Alvania EP 2
Esso	Multipurpose grease H
Bardahl	Maxlub APG 2 EP

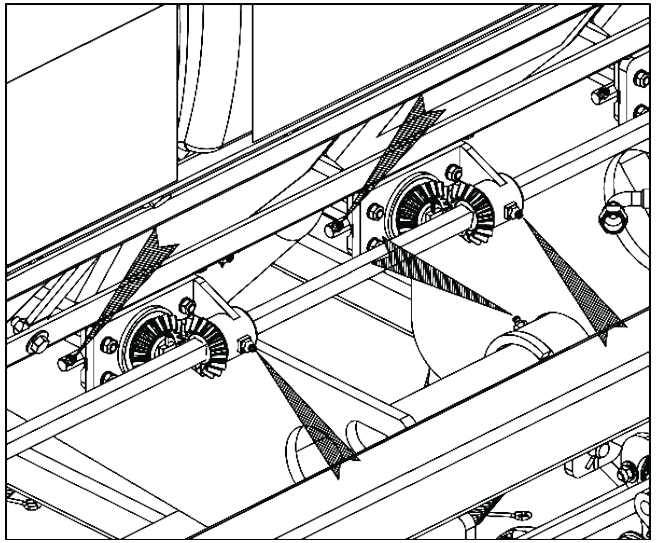
IMPORTANT

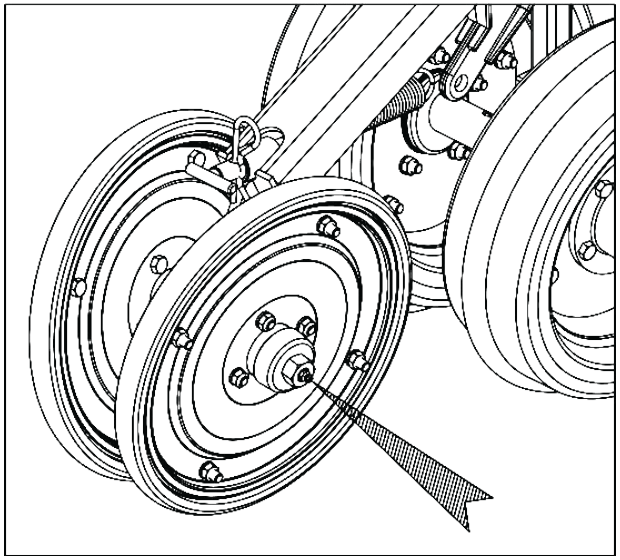
If there are other lubricants and / or equivalent grease brands listed in this Table, consult the technical manual of the lubricant manufacturer.

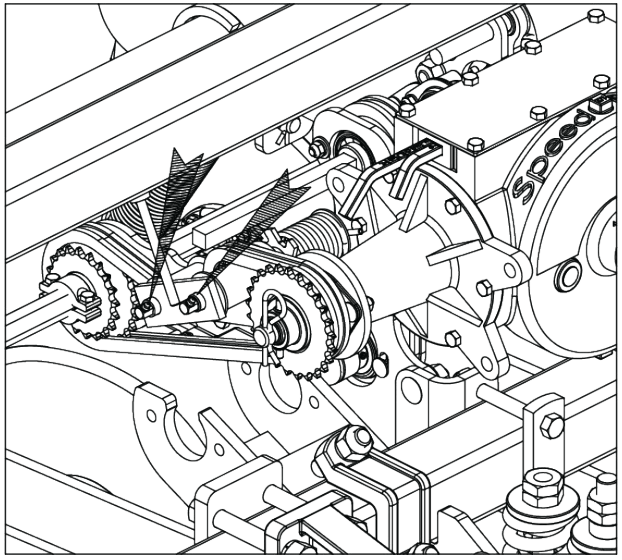
LUBRICATE EVERY 10 HOURS OF WORK

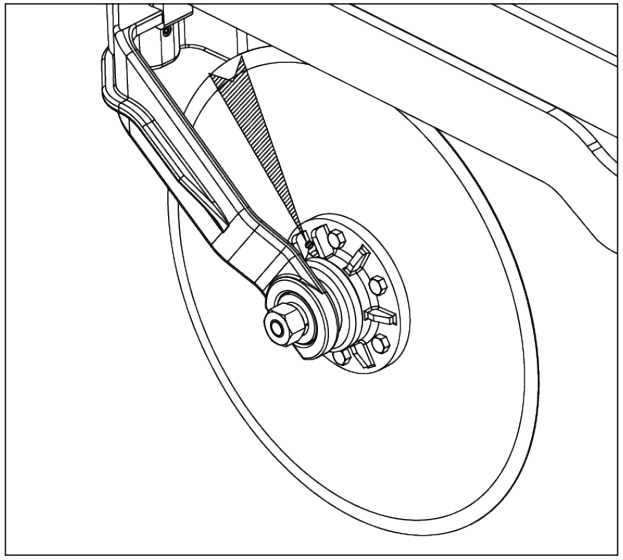








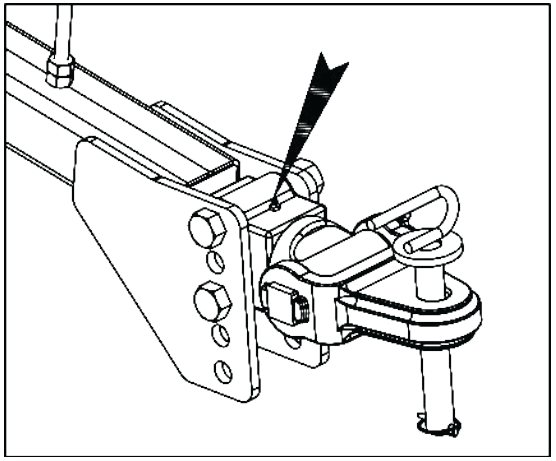


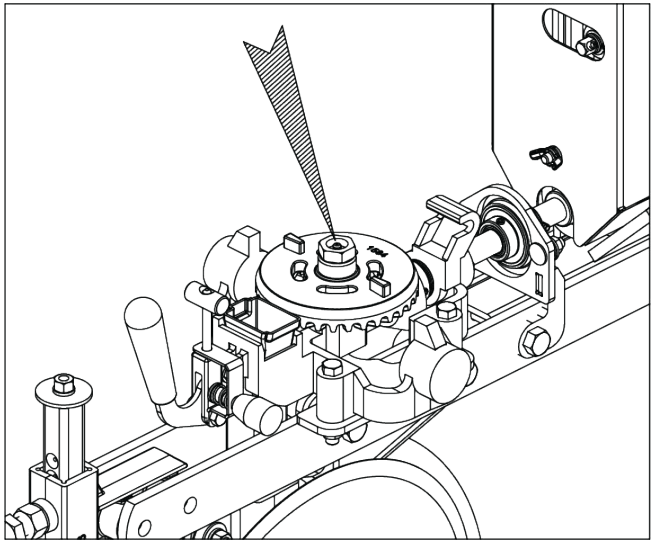


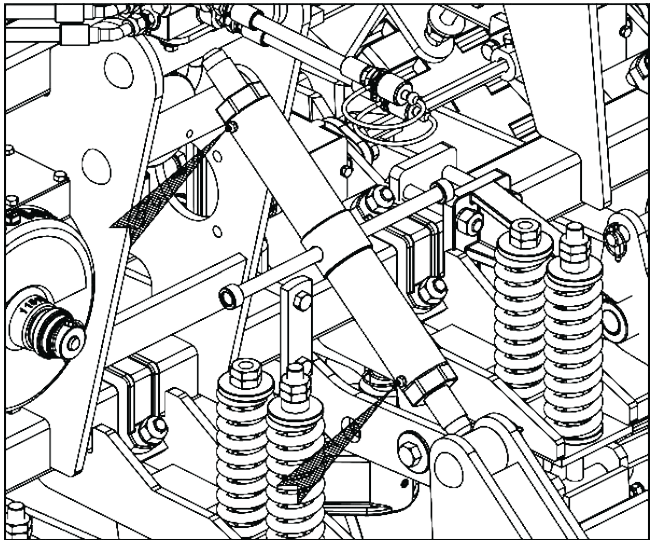
MAINTENANCE

MAINTENANCE

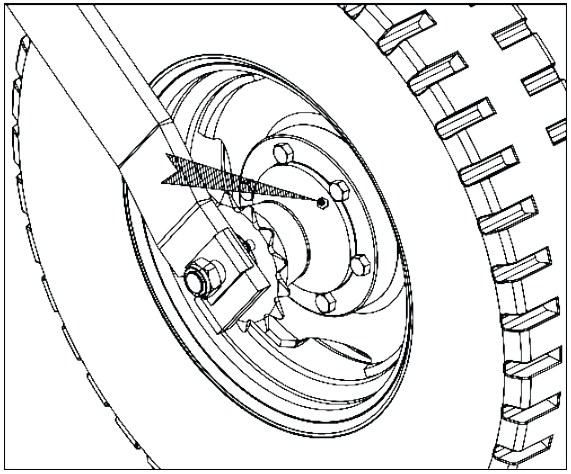
LUBRICATE EVERY 30 HOURS OF WORK

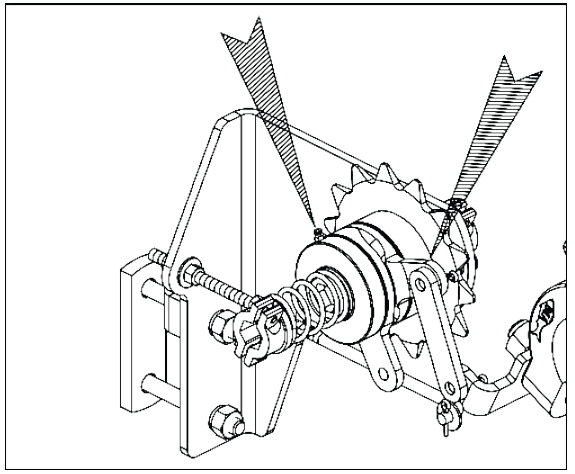






LUBRICATE EVERY 60 HOURS OF WORK





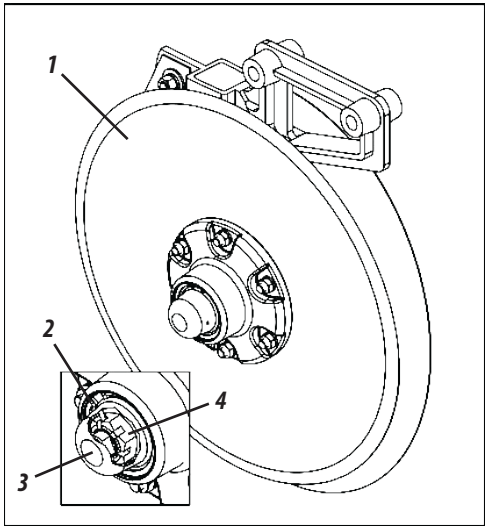
⚠ ATTENTION

Do not put excess grease on the ratchet, respect the 60-hour interval to re-lubricate.

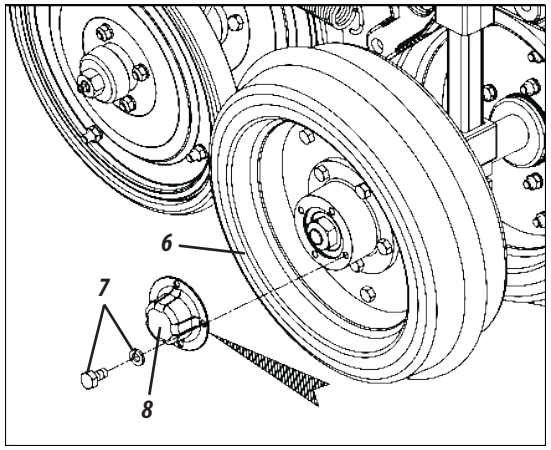
LUBRICATE EVERY 200 HOURS OF WORK

Periodically lubricate the hubs of the double discs (1) approximately every 200 hours and at the end of the season, to do this follow the sequence and at the end of each season as follows:

1- Remove the retaining ring (2) from the hub (3). Examine the bearings, if there are gaps, adjust through the castle nut (4). Insert new grease into the cap (5). Replace the hubcap on the hub and secure it with the retaining ring (1).



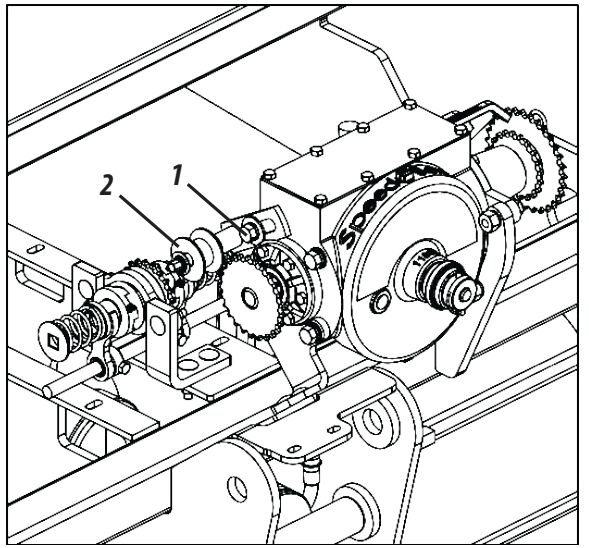
2- On the compacting wheels (6) loosen the screws and washers (7), remove the cap (8) and add new grease. Replace the hub (8) on the compactor wheels (6) and secure it with the screws and washers (7).



CHAIN TENSION

- To tension the chain, proceed as follows:

1- Loosen the screw (1), slide the tensioner (2) until the necessary tension. Then, retighten the nut.

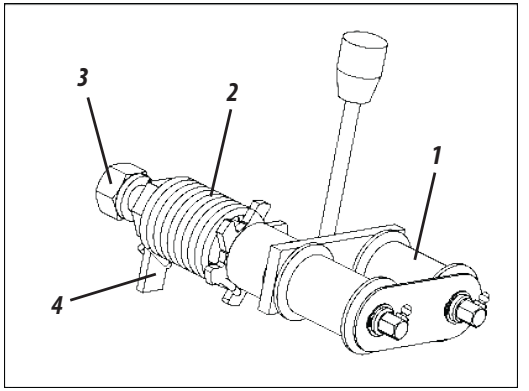


ATTENTION

Check the chain tension daily, the normal clearance should be + - 1cm in the center.

OSCILLATING STRETCHER

The tensioner (1) is equipped with a torsion spring (2) for greater flexibility. If greater pressure is required on the tensioner, loosen the inner nut (3) of the same, turn the shaft (4) passing the spring coupling (2) to the other tooth of the shaft rosette and retighten the inner nut (3).



MAINTENANCE

MAINTENANCE

OPERATIONAL MAINTENANCE

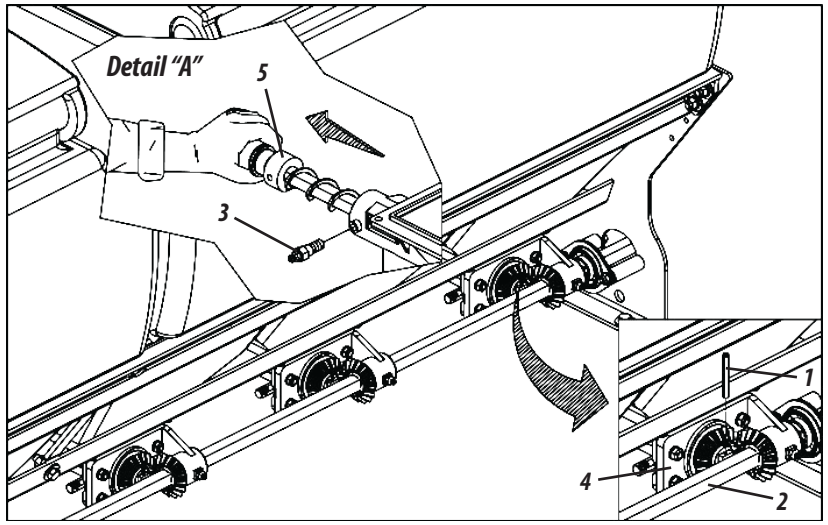
PROBLEMS	PROBABLE CAUSES	SOLUTIONS
During planting, fertilizer starts to leak through the safety exits.	Clogged hoses or pieces of plastic in the conductive fertilizer coils.	Unclog the hoses or remove the upper channel that gives access to the spiral, turn the shaft upside down until the foreign body that is screwed out comes out.
Fertilizer hub shaft does not rotate.	Spiral blocked with wet fertilizer or excess fertilizer in the closed line.	Unclog the spirals, check if there is loose gutter and the fertilizer may be entering from the sides of them.
One planting line is less shallow than the other.	ADJUSTMENTS other than pressure on the depth limiting wheels or line springs.	Adjust all wheels of equal depth and the pressure of the line springs.
The furrow is opening too much during planting.	Sticky soil and sticks to discs or excessive work speed.	Decrease the working speed.
Strange noise when operating or walking with a loaded seeder.	Loose wheels or wheel hub with game.	Retighten the wheel nuts. Adjust the wheel hub bearings.
The sower leaves the planting line, sometimes on one side, sometimes on the other side.	Tractor drawbar loose.	Use the pin that comes with the seeder. Attach the tractor's drawbar to the central hole.
It is not covering the groove.	Poorly adjusted cover wheels or wet terrain.	Adjust the covering wheel, moving it laterally in relation to the groove.
The hydraulic cylinders stop operating, raise the seeder and then do not lower or vice versa.	Different quick coupling, ball type male and needle type female or vice versa.	Change the quick coupling, placing both of the same type.
Broken seeds.	High planting speed.	Decrease the working speed.
	Inadequate disk thickness.	Use suitable disc (thickness and diameter of holes).
	Disc misplaced. The seed sieve is not suitable for the disc used.	Insert the disc properly (Observe the phrase: **THIS SIDE DOWN).**
	Be using moist seed.	Use dry seeds.

CLEANING THE CROSS CONDUCTOR

After planting, do not leave fertilizer in the deposit. To do the cleaning, proceed as follows:

1- Remove the elastic pin (1) from the shaft (2) and the screw (3) from the distributor gun (4). Then, pull the shaft (5) backwards, as shown in **Detail "A".**

2- Then, reassemble the shaft, observing the correct Assembly of the fertilizer distribution system.

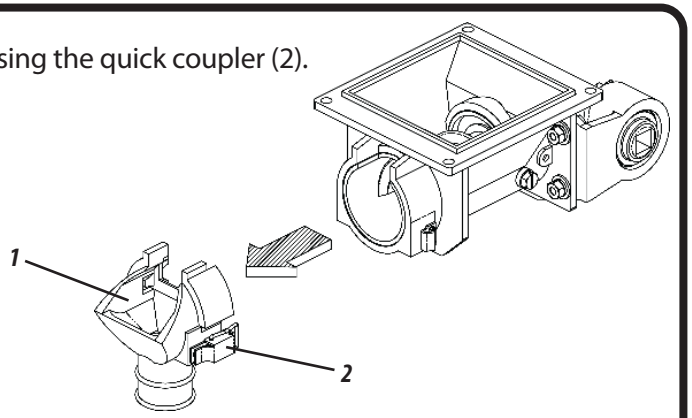


ATTENTION ***Do not use chemical detergents to wash the seeder, as this may damage the painting.***

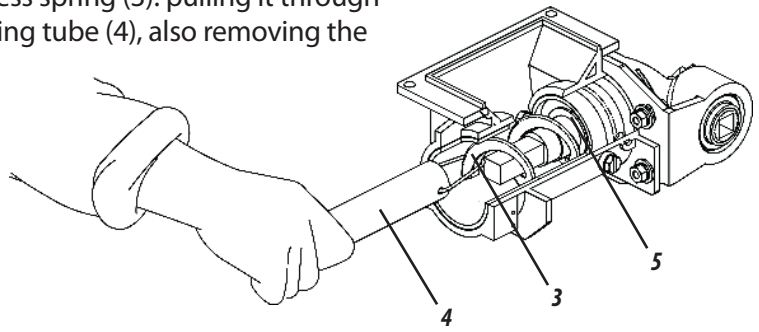
CLEANING THE FERTISYSTEM CONDUCTOR - OPTIONAL

After planting, do not leave fertilizer in the deposit. To do the cleaning, proceed as follows:

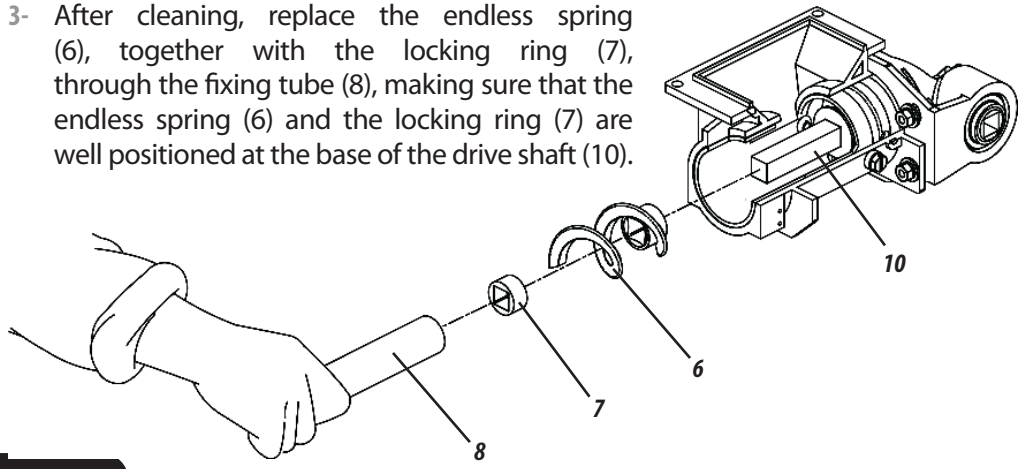
1- Remove the nozzle (1) using the quick coupler (2).



2- Remove the endless spring (3). pulling it through the ring of the fixing tube (4), also removing the locking ring (5).

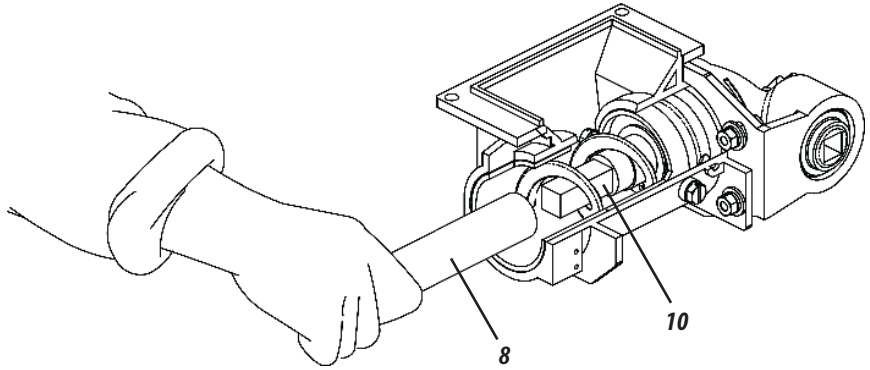


3- After cleaning, replace the endless spring (6), together with the locking ring (7), through the fixing tube (8), making sure that the endless spring (6) and the locking ring (7) are well positioned at the base of the drive shaft (10).



MAINTENANCE

MAINTENANCE

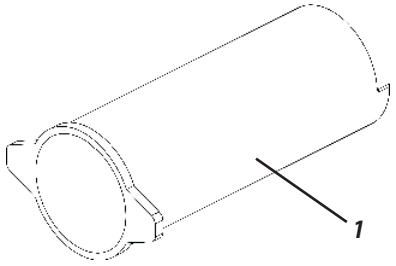


⚠ ATTENTION

Keep the auger in position with the lock ring. This procedure will prevent damage to the transverse cover when the doser is not used with the fertilizer or when transporting the seeder. The lack of the locking ring can cause damage to the fertilizer distribution and / or seeder transmission.

MAINTENANCE TUBE FOR FERTISYSTEM CONDUCTOR

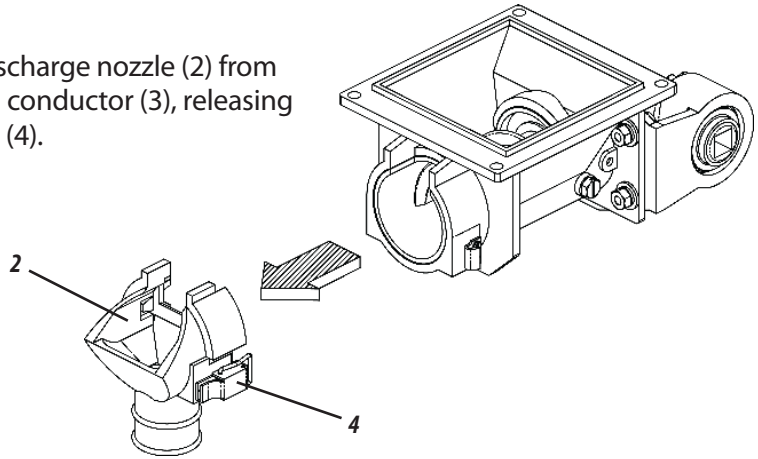
The SPE Top line seeder, when sold with the Fertisystem driver, comes with a maintenance tube (1) to carry out maintenance or changes to the endless spring, without the need to remove the fertilizer from the box.



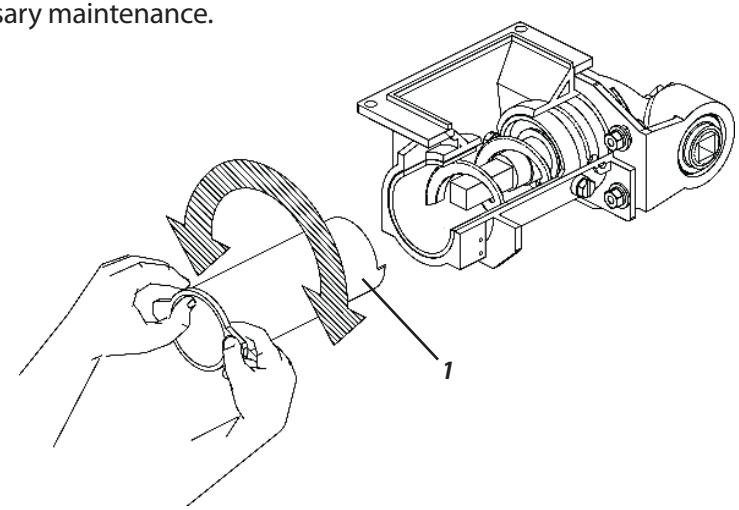
Maintenance Tube
Código: 60203900930

To perform maintenance on the fertisystem driver, proceed as follows:

1- Remove the discharge nozzle (2) from the fertisystem conductor (3), releasing the quick locks (4).



2- Then, introduce the maintenance tube (1) in rotating movements, promoting the displacement of the fertilizer to the bottom of the feeder. Then do the necessary maintenance.

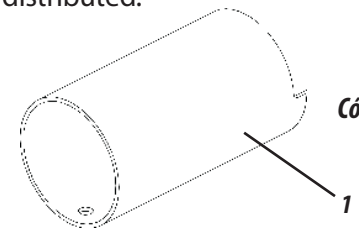


NOTE

The maintenance tube (1) has a cutting angle at the end to facilitate this operation.

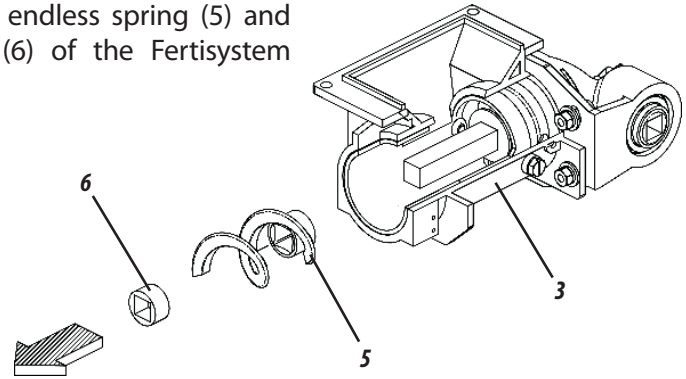
BLOCKING TUBE FOR FERTISYSTEM DRIVER

The **SPE Top line** seeder when sold with the Fertisystem driver comes with a blocking tube so that when you need to isolate some planting lines, the fertilizer is not distributed.

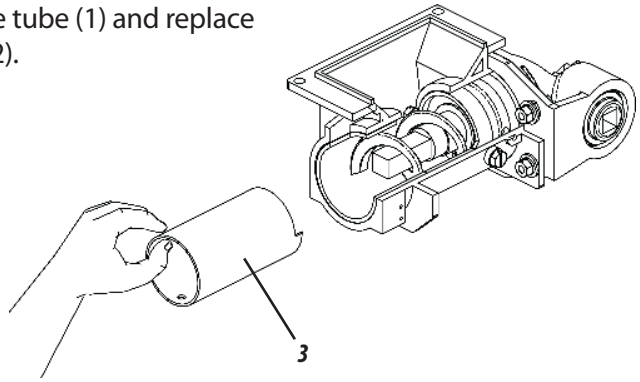


Blocking Tube
Código: 60203900913

Then, remove the endless spring (5) and the locking ring (6) of the Fertisystem conductor (3).

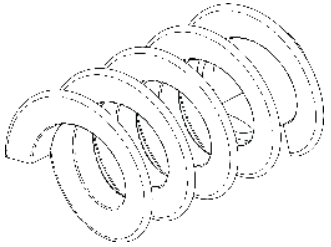


Then, insert the release tube (1) and replace the discharge nozzle (2).

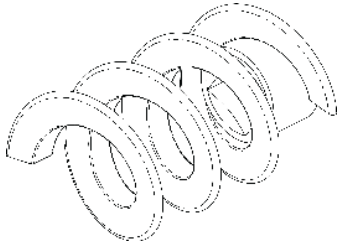


SPRING AND COVERS (OPTIONAL) CONDUCTOR FERTISYSTEM

The **SPE Top line** seeder leaves the factory assembled with a step 2 ″endless spring, however the seed The SPE Top line seeder leaves the factory with the transverse flow cap (standard), however the seeder can be supplied with two other flow cap models (optional). er comes with a step 1″ endless spring in its packaging. The seeder can also be supplied as a 3/4 ″pitch spring (optional).

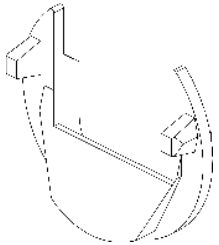


Endless Spring (Pitch 3/4″)
Código: 60203700418

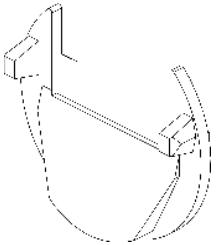


Endless Spring (Pitch 1″)
Código: 60203700426

The **SPE Top line** seeder leaves the factory with the transverse flow cap (standard), however the seeder can be supplied with two other flow cap models (optional).



Cover Fertipó
Código: 60203900530



High Flow Cover
Código: 60203900522

NOTE

Always fill the fertilizer tank at the workplace.
Avoid any type of impurity inside the fertilizer tank.
Measure the dosage daily.

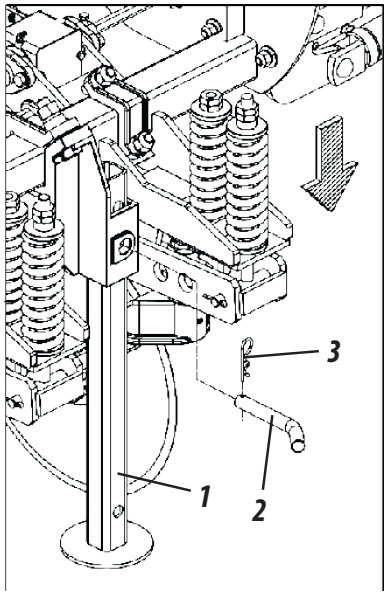
MAINTENANCE

MAINTENANCE

TIRE CHANGE

If necessary, change or repair the tires for this, proceed as follows:

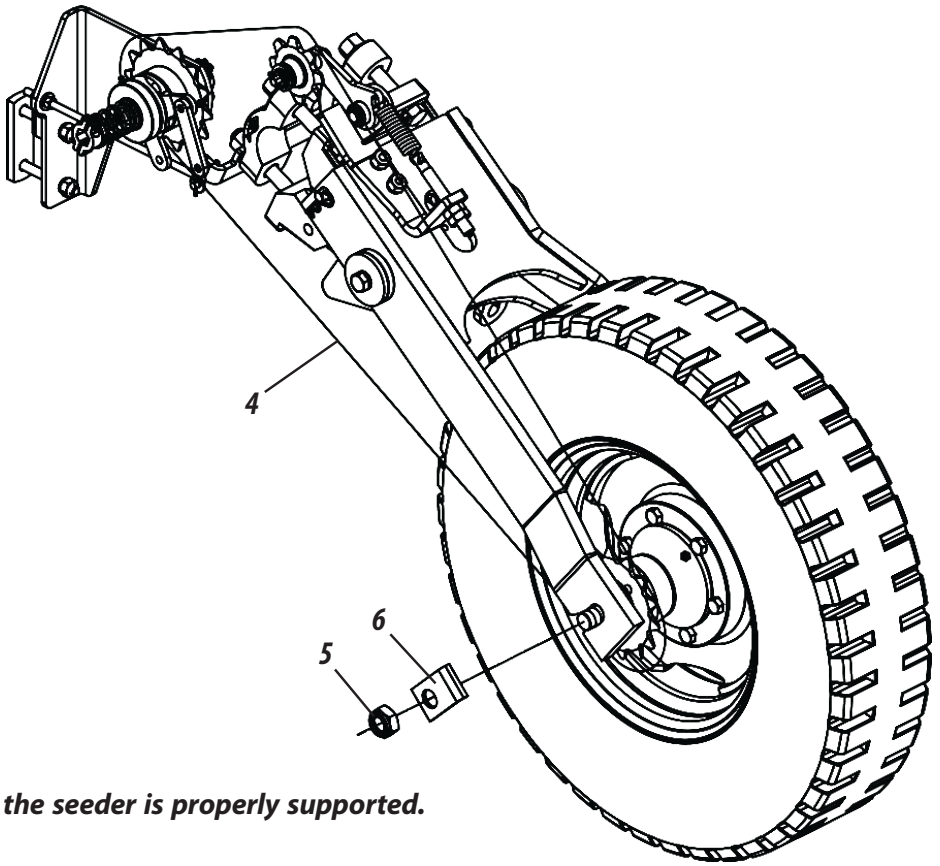
1- First, support the seeder at the rear so that it is stabilized.



2- Then, lower the support brackets (1) on the front of the seeder and secure them with the pin (2) and lock (3).

3- Then, fully retract the hydraulic cylinder by suspending the tire from the ground.

4- Finally, remove the chain (4), loosen the nuts (5) and the lock (6) to remove the tire.



ATTENTION | ***Before changing or repairing the tires, make sure that the seeder is properly supported. Avoid accidents.***

CARE

1- Check the condition of all pins and screws before starting to use the seeder.

2- The speed of travel must be carefully controlled according to the conditions of the terrain.

3- Baldan seeders are used in various applications, requiring knowledge and attention during handling.

CARE

1- Only local conditions can determine the best way of operating the seeder.

2- When assembling or disassembling any part of the seeder, use suitable methods and tools.

3- Observe the lubrication intervals carefully at the different points of the seeder.

4- Always check if the parts show wear. If replacement is required, **always require original Baldan parts.**

GENERAL CLEANING

1- When storing the seeder, do a general cleaning and wash it only with water. Check that the paint has not worn out, if this has happened, apply a general coat, apply protective oil and lubricate the seeder completely. Do not use burnt oil.

2- At the end of planting, proceed as follows:

- Remove the transmission chains and keep them bathed in oil until the next planting.

- Remove all hoses by immediately washing them with mild soap and water. Do not use other chemicals.

- Remove the regulator and articulate the header upwards, locking it.

3- Lubricate the seeder completely. Check all moving parts of the same, if they show wear or looseness, make the necessary adjustment or replacement of the parts, leaving the seeder ready for the next planting.

4- After all maintenance care, store the seeder in a covered and dry place, properly supported. Prevent the discs from being directly in contact with the ground.

5- When connecting or disconnecting the hydraulic hoses of the seeder, do not let the ends touch the ground. Before connecting the hydraulic hoses, clean the connections with a clean, lint-free cloth **(do not use burlap)**.

6- Replace any stickers, especially those that are damaged or missing. Make everyone aware of their importance and the dangers of accidents when instructions are not followed.

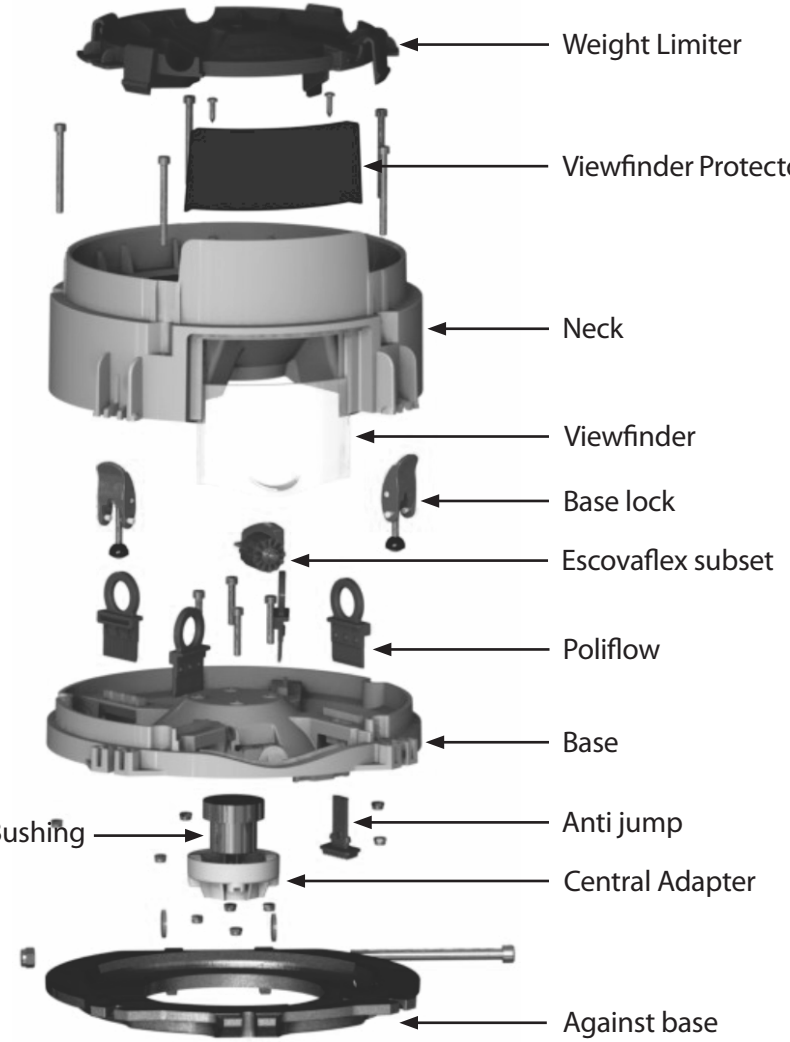
7- We recommend washing the seeder only with water at the beginning of the new planting.

⚠ ATTENTION | ***Do not use chemicals to wash the seeder, as this may damage the painting.***

MAINTENANCE

TITANIUM DOSER - OPTIONAL

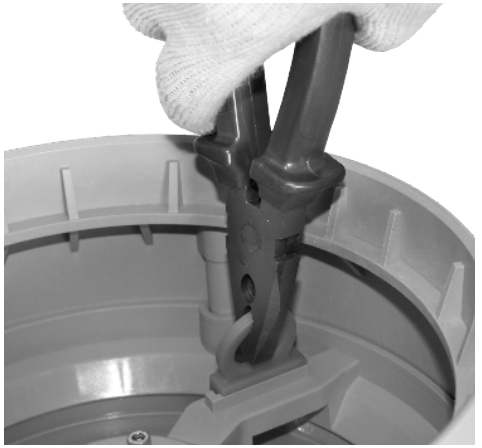
The **SPE TOP LINE FLEX** seeder can be optionally purchased with the **TITANIUM** seed dispenser. See below, the components that make up **TITANIUM**.



REPLACEMENT OF TITANIUM FEEDER POLIFLOWS - OPTIONAL

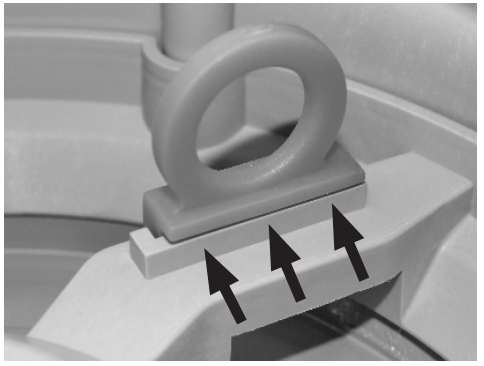
The exchange can be done manually or with universal pliers.

1st Step: Remove the weight limiter. Pull the **POLIFLOW** with your finger or pliers.



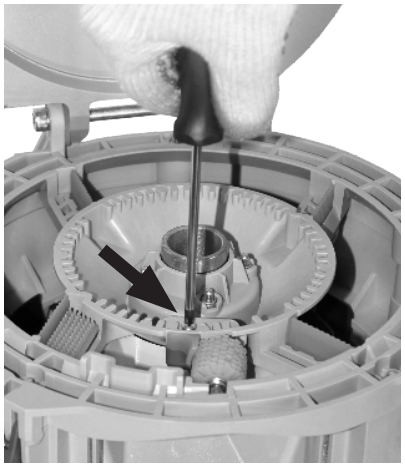
2nd Step: When fitting the **POLIFLOW,** make sure it is in the correct position.

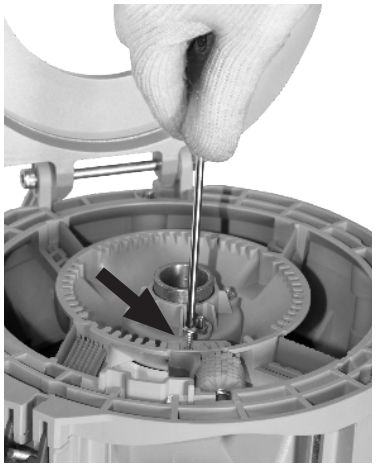
3rd Step: Insert it until the faces come together.



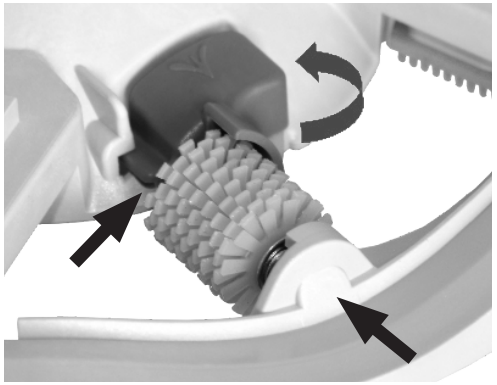
BRUSHING OF THE TITANIUM ESCOVAFLEX - OPTIONAL

The exchange must be done with a Phillips N 02 key.
Unlock and open the counter base. Then, loosen the screw.

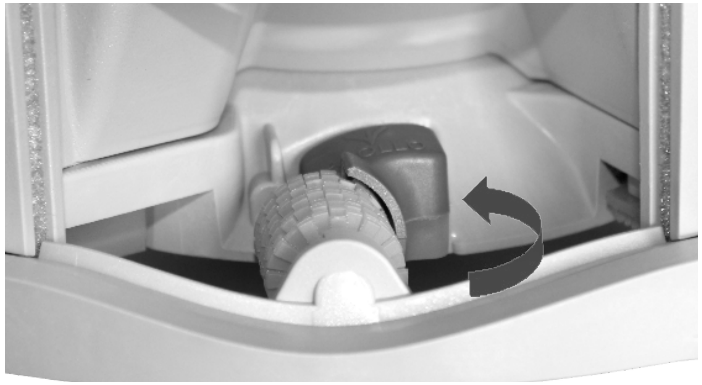




Rotate the **ESCOVAFLEX** counterclockwise and raise the rear diagonally.



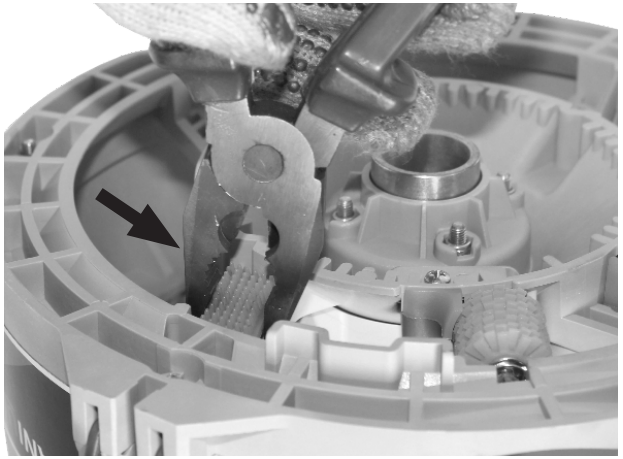
Note: The side of the support must fit into the base.



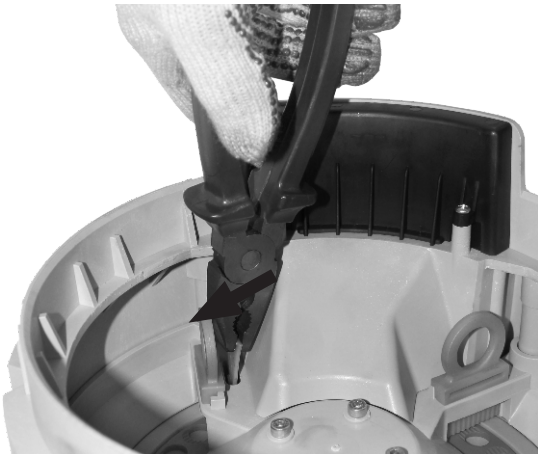
ESCOVAFLEX also fits in the base, so when replacing the used one with a new one, confirm that it is properly fitted.

REPLACEMENT OF TITANIUM DOSER ANTI JUMP - OPTIONAL

Use universal pliers.
With pliers, remove the **ANTI JUMP.**



Fit the **ANTI JUMP** and with pliers inside the box pull until it clicks into the base.

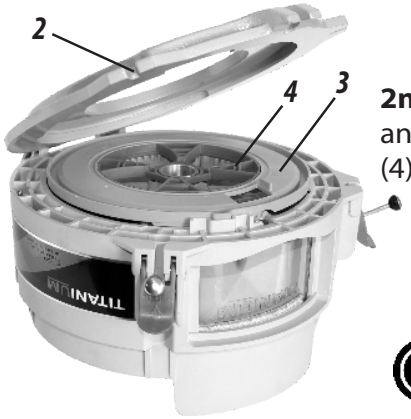


MAINTENANCE

EXCHANGE OF DISCS AND RINGS ON THE TITANIUM DOSER - OPTIONAL

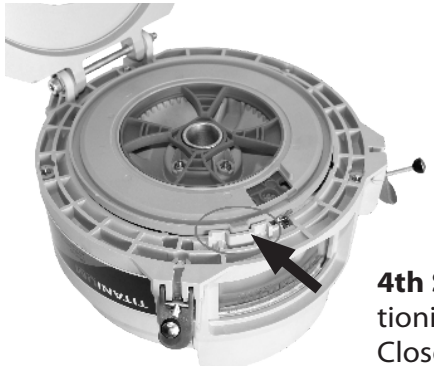
To change or replace the discs and rings on the Titanium seed feeder (optional), proceed as follows:

1st Step: Open the latches (1).



2nd Step: Tilt the counter base (2) and remove the ring (3) and disc (4).

3rd Step: When placing the new disc, make sure it is in the correct position.
Fit the central hole of the disc in the centering sleeve.



4th Step: Fit the adapter ring to the disc obeying the positioning.
Close the counter base, lock the system.

NOTE | ***If there are seeds in the tank, remove them before changing the disc and ring, preventing them from spreading on the floor or locking the system.***

CARE IN CLOSING THE TITANIUM DISPENSER - OPTIONAL

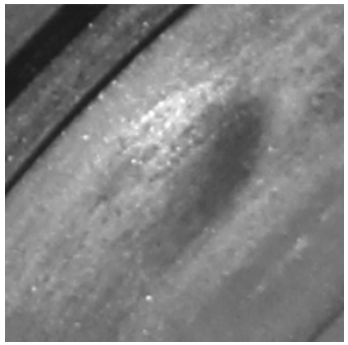
When you notice difficulties when closing the TITANIUM dispenser, follow these steps:

1st Check if the disk and ring were correctly assembled in the housing.
2nd Check if there is dirt in the counter base of the TITANIUM dispenser, if there is cleaning according to the instructions on the next page and in the manufacturer's manual.
3rd Adjust the latches, providing ease when opening the TITANIUM dispenser and also providing a light tightening when closing.

ATTENTION | ***Never leave the latches loose, they directly influence plantability in cases of disc and ring looseness.***

EXCHANGE OF RINGS WITH EACH NEW PLANTING TITANIUM DOSER - OPTIONAL

To maintain the excellence and efficiency of the TITANIUM dispenser, it is necessary to change the rings at each new planting, factors such as the use of graphite and the number of hours worked directly influence this wear. In tests carried out it is concluded that a worn ring can increase the number of double seeds in the same hole of the disc. **See example of the ring below.**



Wear very evident in this area that can cause double (two seeds in the same hole of the disc).

NOTE | ***At the end of planting, it is recommended to dismantle the TITANIUM dosing disc and ring.***

ATTENTION | ***For more information on the TITANIUM seed dispenser, consult the manufacturer's instruction manual on the website: www.assy.com.br***

TITANIUM FEEDER CLEANING - OPTIONAL

After planting is complete, clean the TITANIUM dosing disc and ring housing. It should be washed with a brush and neutral detergent, **do not use corrosive products such as automotive shampoo, among others.**

TITANIUM doser contrabase dirty and crusted.

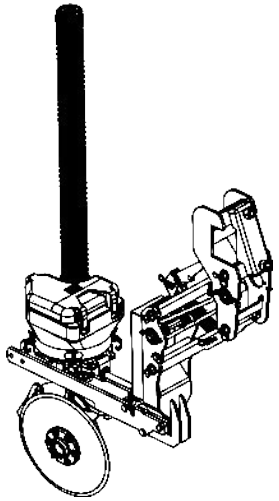
Wash with brush and neutral detergent, rubbing well to remove all dirt.

MAINTENANCE

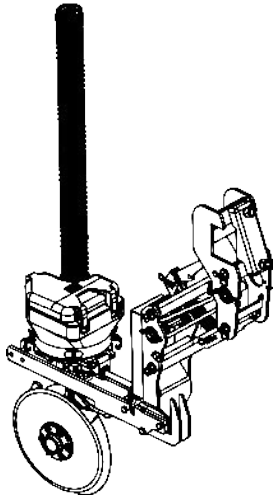
OPTIONAL

OPTIONAL ACCESSORIES

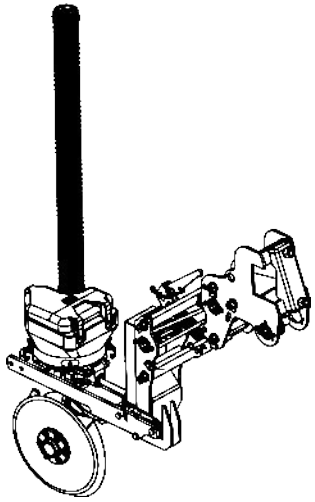
The **SPE TOP LINE FLEX** has options that can be purchased according to the work needs.



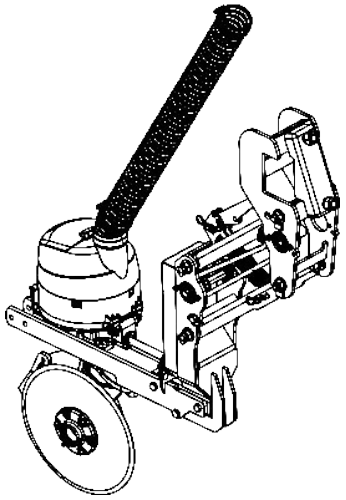
RIGHT SMALL PANTOGRAPHIC LINE FOR 3RD UNIVERSAL DEPOSIT



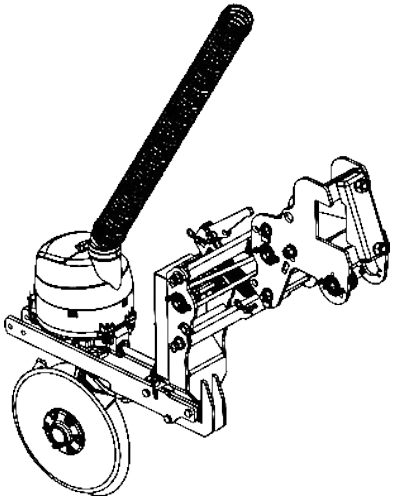
LEFT SMALL PANOGRAPHIC LINE FOR 3RD UNIVERSAL DEPOSIT



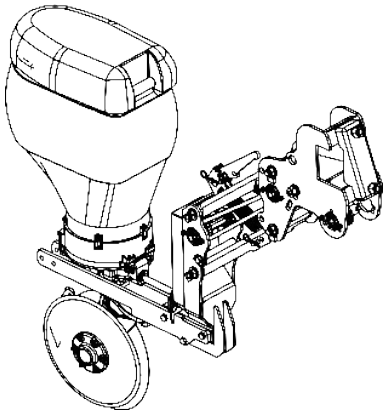
LEFT LARGE PANOGRAPHIC LINE FOR 3RD UNIVERSAL DEPOSIT



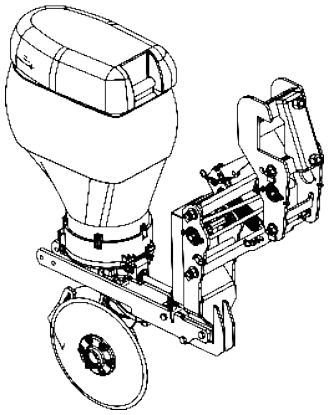
RIGHT SMALL PANTOGRAPHIC LINE FOR 3RD TITANIUM DEPOSIT



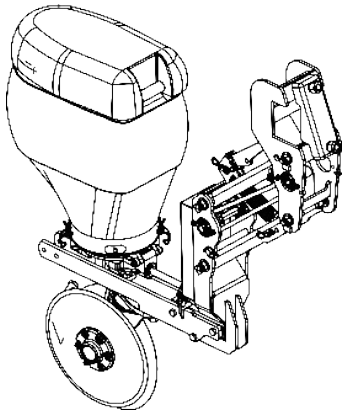
LEFT LARGE PANTOGRAPHIC LINE FOR 3RD TITANIUM DEPOSIT



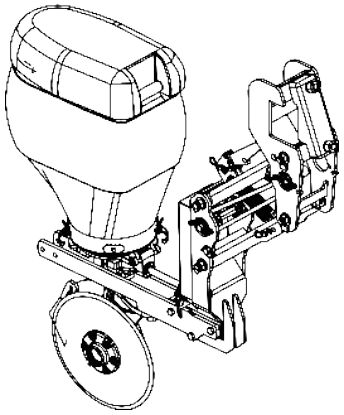
LEFTLARGE PANTOGRAPHIC LINE TITANIUM (2019)



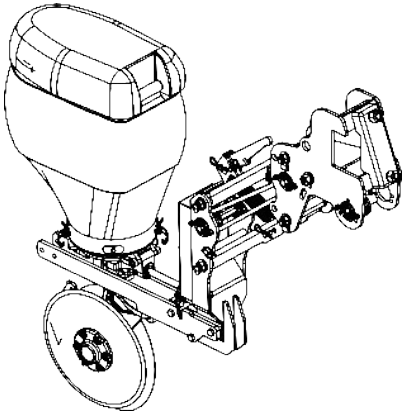
RIGHT SMALL PANTOGRAPHIC LINE TITANIUM (2019)



LEFT SMALL PANOGRAPHIC LINE BALDAN (2019)

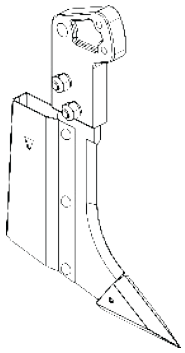


RIGHT SMALL PANTOGRAPHIC LINE BALDAN (2019)

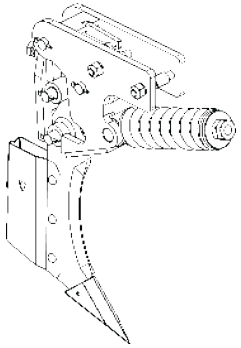


LEFT LARGE PANTOGRAPHIC LINE BALDAN (2019)

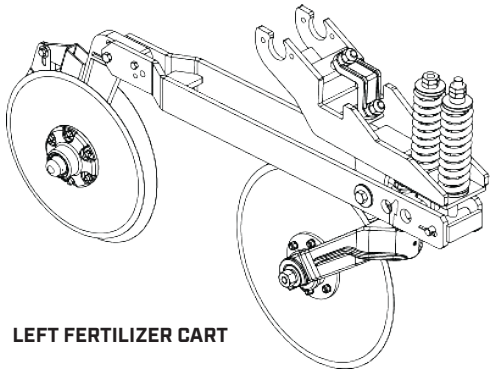
OPTIONAL ACCESSORIES



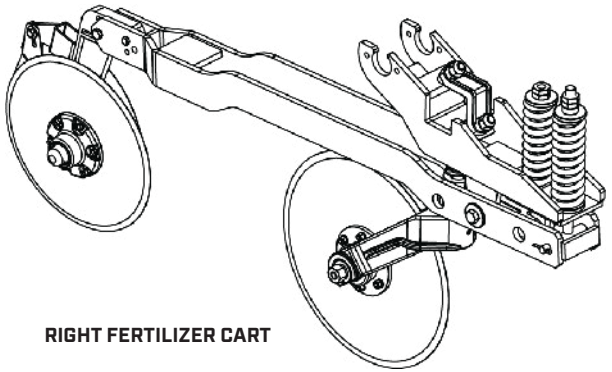
FURROWER W/ SUPPORT



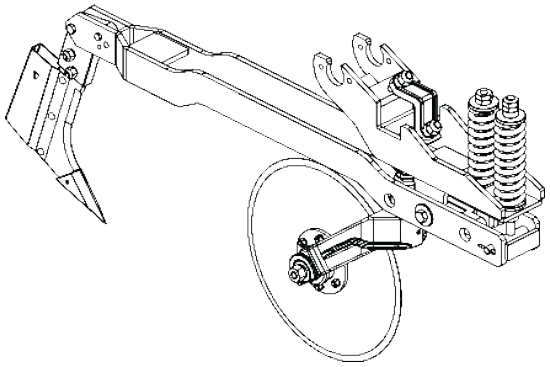
AUTOMATIC DISARM AND RESET FURROWER



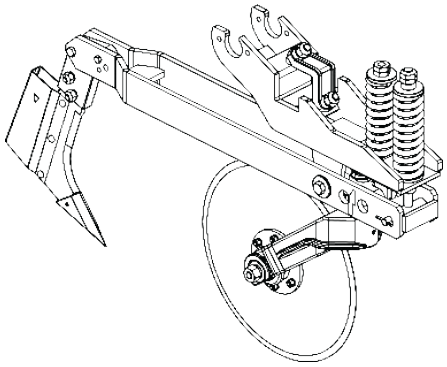
LEFT FERTILIZER CART



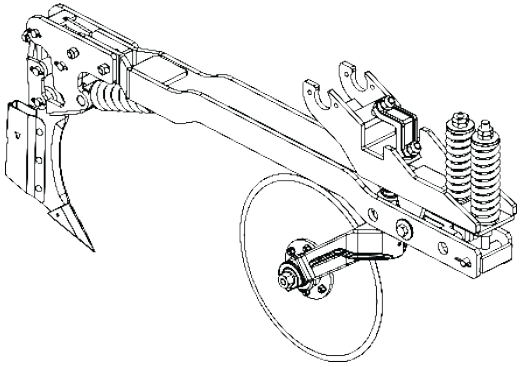
RIGHT FERTILIZER CART



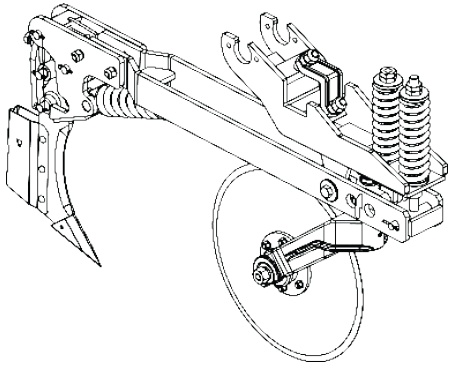
LARGE CART WITH COMPLETE FURROWER (SPECIAL PIN)



SMALL CART WITH COMPLETE FURROWER (SPECIAL PIN)



LARGER CART WITH DISARM/RESET COMPLETE FURROWER

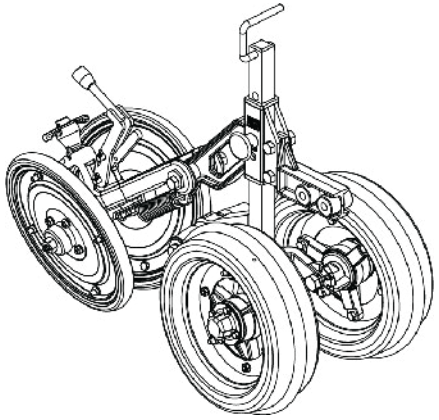


SMALL CART WITH DISARM/RESET COMPLETE FURROWER

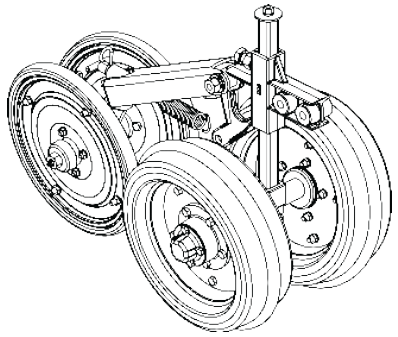
OPTIONAL

OPTIONAL

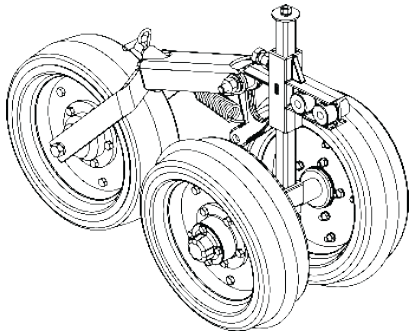
OPTIONAL ACCESSORIES



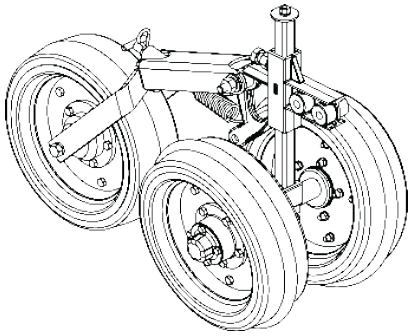
CART OF OSCILATING DEPTH WHEEL AND COMPACTATION WHEEL TYPE “V”



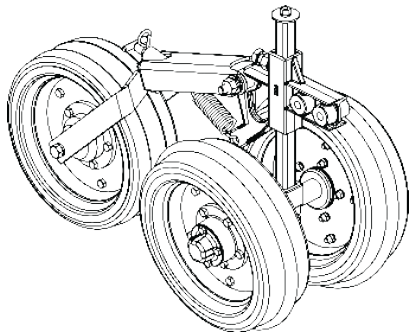
CART OF DEPTH WHEEL AND WHEEL TYPE “V” (EXCENTRIC)



CART OF PLAIN COMPACTATION WHEEL

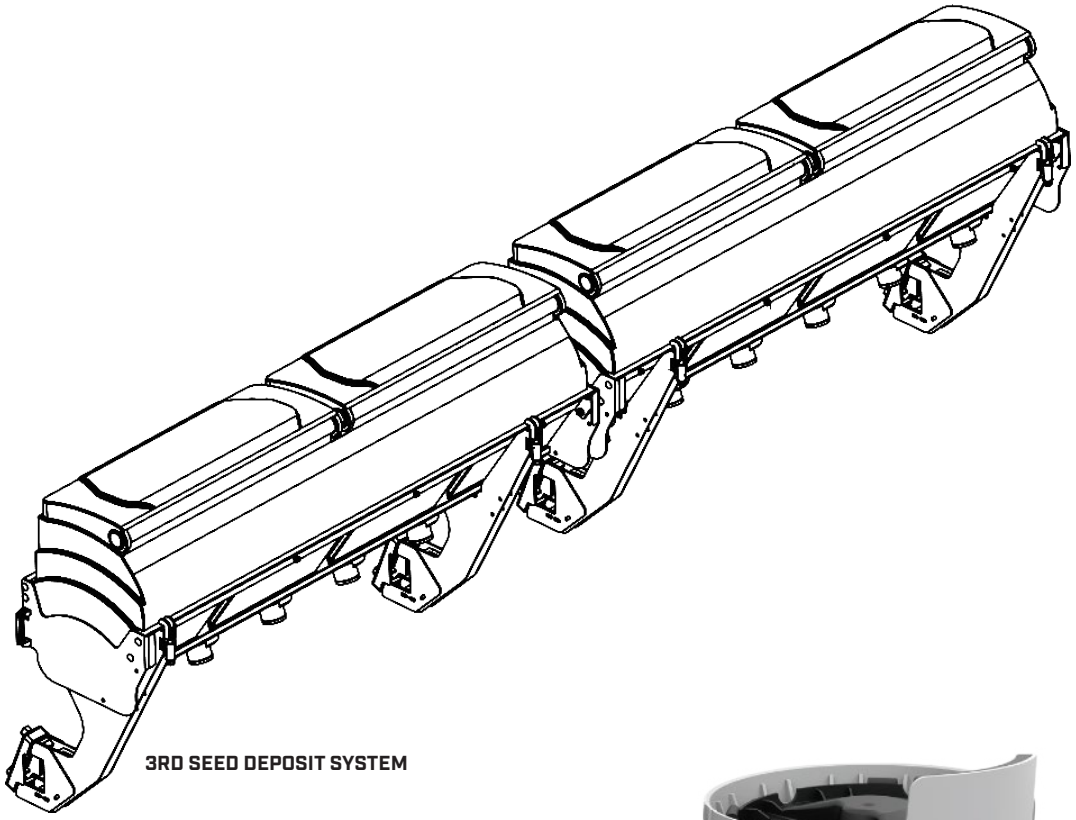


CART OF CONVEX COMPACTION WHEEL

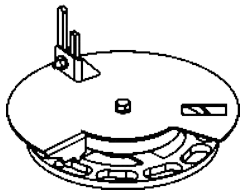


CART OF CONCAVE COMPACTATION WHEEL

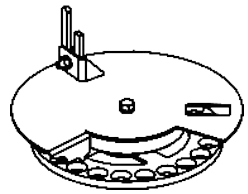
OPTIONAL ACCESSORIES



3RD SEED DEPOSIT SYSTEM



CONVERSION SYSTEM FOR PEANUT PLANTING 11 HOLES



CONVERSION SYSTEM FOR PEANUT PLANTING 22 HOLES

PLANTING MONITOR PMB 400

ELECTRONIC DOSAGE CHART - ETD

TITANIUM

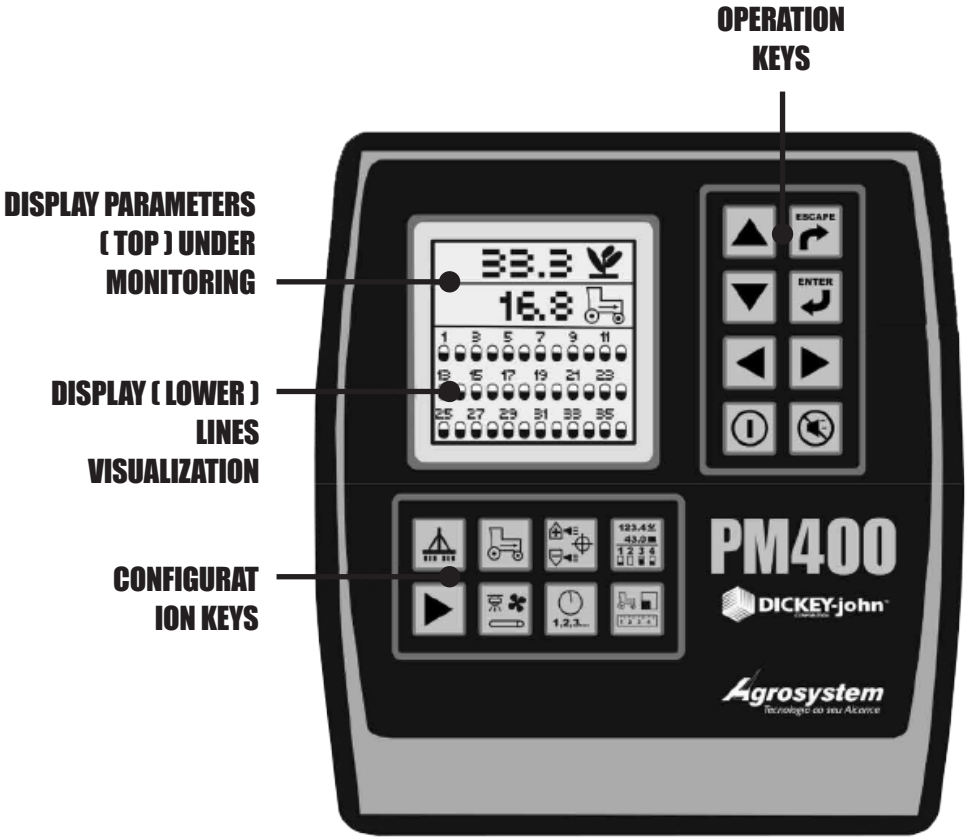
OPTIONAL

PMB 400 MANUAL

OPERATION MANUAL PMB 400 (OPTIONAL)

- PM 400

- Monitor overview



FRONT VIEW OF MONITOR

OPERATION MANUAL PMB 400 (OPTIONAL)

• Navigation keys - Part I

ON / OFF

Press  to activate the monitor. When turned on, the monitor carries out internal tests, lights up the display, sounds an alarm and determines which sensors are connected to the system.
Pressing the key for one second, when the display is on, the system will be turned off regardless of what is shown on the display.

ALARM CANCELLATION

When pressing the key during normal operation, the monitor recognizes the alarm conditions that are being shown on the display.
When pressing the key during the alarm event, the audible warning will be canceled but the visual information will continue to be displayed.

ENTER

By pressing 

you will move from the main operation screen to the main menu or the selected screen. Once the item is selected, when the key 

pressed, the navigation mode will be modified to change the data.

NOTE: After having changing the data, the ESC key will accept the change.

OPERATION MANUAL PMB 400 (OPTIONAL)

- **Navigation keys - Part II**

ESC (EXIT)

When pressing the key 

for two seconds on the OPERATION SCREEN, the accumulated area located at the top of the screen will be reset. The key 

can be used to return to OPERATION mode.

NOTE: After having made the data change, the ESC key will accept the change.

UP ARROW AND DOWN ARROW

On the OPERATION SCREEN the arrow keys are used to manually select the parameters that are being displayed at the top of the display.

NOTE: These keys will be inactive if all configured parameters are being displayed.
When in a settings screen, ARROWS are used to navigate between options or to change a digit/option.

LEFT ARROW AND RIGHT ARROW

On the OPERATION SCREEN the arrow keys are used to manually select the lines that are being displayed at the bottom of the display.

NOTE: These keys will be inactive if all configured parameters are being displayed.
When in a settings screen, ARROWS are used to navigate between options.

• Settings keys - Part I

SETTING THE PLANTER

This key is used to set:

- Number of lines;
- Line spacing;
- Planter width (optional)
- Line status (seed, fertilizer, blocked or disabled).

See “Planter Configuration” for more information.

SETTING THE TRAVEL SPEED

This key is used to:

- Perform the travel speed calibration;
- Enter the manual travel speed data (used if there is no speed sensor available);
- Configure the speed limit alarm.

See more information in “Setting the Travel Speed”.

- **Settings keys - Part II**

LIMIT CONFIGURATION

This key is used to set:

- Maximum / Minimum Population Variation Limits (optional).
- Estimated target population (optional).
- Population adjustment factor, for sensors that comprise less than 100% of the total seeds (optional).
- Response rate, to increase or decrease the response rate (optional).

See more information in “Limits Configuration”.

DISPLAY AND SERVICE CONFIGURATION

This key is used to:

- Access security functions, line indicators, services and sub-menus;
- Selection of Metric / English units;
- Intensity of the display illumination;
- Alarm volume;
- Font and Icon Size;
- Sound Intensity.

See more information in “Setting the Travel Speed”.

• Settings keys - Part III

OPERATION

This key is used for the user to return to the OPERATION SCREEN.
See “Operation” for more information.

ACCESSORIES SETTINGS

This key is used to configure the selection of Fan (RPM), Shaft (RPM) or Flow (Grains per minute).
See “Setting the Accessories” for more information.

SEED COUNT MODE

This key takes the user to the SEED COUNTING screen.
This mode allows the user to test the planter before operating in the field and shows the seed count for each row in use.
See more information in “Seed Counting Mode”.

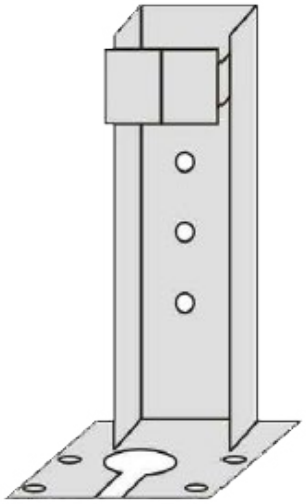
AREA, SPEED, AND DISTANCE MODE

This key takes the user to the SPEED, AREA and DISTANCE screen.
This mode allows the user to use the monitor for operations without planting. This mode is also used to start, to clear the three independent area markers (planting area 1, planting area 2 and total area) and distance (linear meter).
See “Speed Area Mode” for more information.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Installation and configuration - Part I

Before shipping, the monitor is tested and inspected to ensure that the unit is operating in full condition and meets all measurement specifications. After unpacking the product, inspect for damage that may have occurred during transportation. Save all packing materials until all inspection has been done. If any damage is found, immediately file a claim with the carrier. Also notify your sales representative.
Install the mounting bracket in the chosen location using suitable tools. Then Install the bracket on the console by sliding it into the slots until the lock fits.



SUPPORT

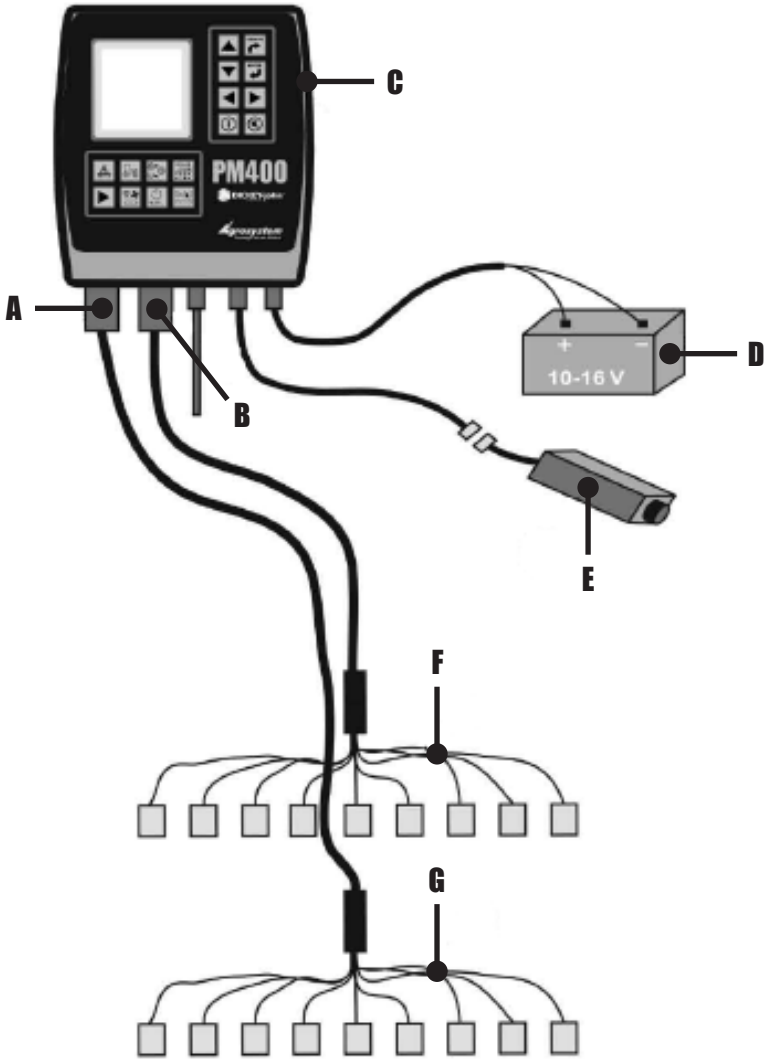
NOTE: The console must not obstruct or interfere with the operation of the tractor.
When mounting on a vertical surface, a strap can be used to retain cables at the bottom of the bracket.

⚠ ATTENTION | **To prevent damage, make sure that the console is properly seated in the bracket.**

OPERATION MANUAL PMB 400 (OPTIONAL)

• Installation and Configuration - Part II

The planting monitor has two inputs for connecting the planter's electrical harnesses.
Input **(A)** monitors from the 1st to the 24th sensor. Input **(B)** monitors from 25th to 36th sensor.



ESQUEMA DE INSTALAÇÃO DO MONITOR

⚠ ATTENTION

The planter configuration and the travel setting the speed are essential for the planting monitor to function.
To perform these settings, see "Setting the Planter" and "Setting the Travel Speed".

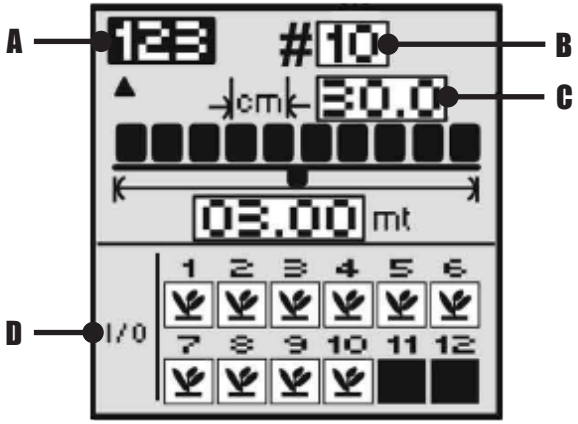
If you have an 11-line planter and a monitor with two electrical harnesses with 12 sensors each: The electrical harness for the seed line sensors must be connected to connection **(A)** and the electrical harness for the fertilizer sensors to connection **(B)**.
But if you have an 11-row planter and a monitor with an electrical harness with 24 sensors: You connect the harness to connection **(A)**, sensors 1 to 12 in the seed lines and sensors 13 to 24 in the fertilizer batchers.

NOTE: You can monitor up to 36 seed lines, using two harnesses or up to 18 seed lines and 18 fertilizer lines.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the planter - Part I

To select the "Planter Configuration" screen, press  , and remember that the monitor stores up to 03 different planter configurations.



SCREEN: SETTING THE PLANTER

01 - In field **A** press  , select a planter configuration number using  confirm by pressing  again;

02 - In field **B** use  to select the number of lines and press  to change the number of lines;

 **NOTE:** Inform only the number of SEED lines to be monitored.

03 - Use to select digits and  increase or decrease values:

04 - Press  to accept the new number;

05 - In field **C**, line spacing, proceed to field **B**.

06 - In field **D**, use  to select the line to be monitored,  to specify the type of monitoring and press  to confirm:

 - Used to monitor seed dosage;

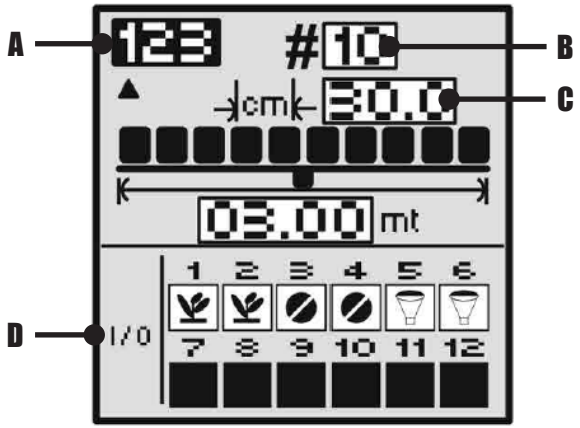
 - Used when the sensor is installed on the line, but it is turned off;

 - Used to monitor fertilizer dosage (flow);

 - Used when the line is removed.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the planter - Part II



SCREEN: SETTING THE PLANTER

At the end of the configuration, press ENTER or ▶ (operation) to return to the OPERATION SCREEN.

• Setting the travel speed - Part I

To select the Travel SETTING THE SPEED screen, press .

To perform a new setting:

⚠ ATTENTION | **The tractor must be in motion before calibration STARTS.**

01 - Select ▶ **(B)** and press ENTER, to start the calibration of 122 meters.

SCREEN: SETTING THE SPEED

NOTE: After calibration has started, the button will switch to ■ **(B).**

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Travel Speed - Part II

01 - Drive for 122 meters (400 feet) and press ENTER to STOP calibration.

02 - The new calibration factor will be displayed in the window. Press ENTER to accept this value or ESCAPE to reject the value.

At the end of the configuration press ESCAPE or ▶ (operation) to return to the PROTECTION SCREEN.

To enter a travel speed constant manually:

01 - Press ◀ ▶ to highlight the displacement speed constant value **(A)**.

02 - Press ENTER to modify the constant.

03 - Press ▲ ▼ to select the digits, increasing or decreasing the values.

04 - Press ENTER to accept the new number.

When the new values have been entered, press ESCAPE or ▶ (operation) to return to the OPERATION SCREEN.

NOTE: It is important to set the travel speed in the planting area.

⚠ ATTENTION **Any value other than zero will activate the travel speed. Adjust the speed manually to zero in order to disable.**

NOTE: To check if the calibration number obtained is correct, go to the speed/area/distance screen and check the speed indicated on the tractor indicator.

We recommend averaging the values of the 3 calibration constants.

NOTE: Calibration on a smooth soil is different from calibrating a soil with stubble.

Whenever you are planting in soil other than the one performed the calibration, perform the calibration process again.

If your planter is not equipped with a travel speed sensor, the operator can enter a value for planting with simulated speed by manually changing the value of the speed field **(C)**.

In the limit field **(D)**, the operator can enter the limit value for excess travel speed.

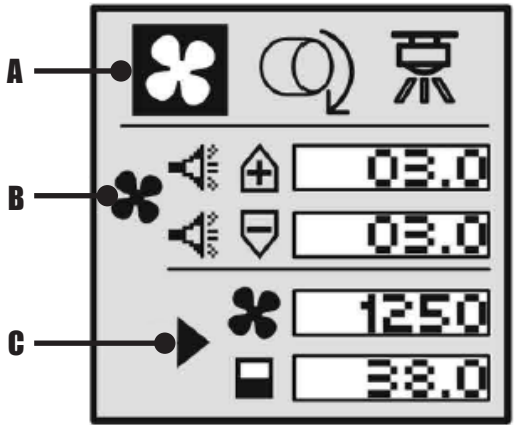
OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Accessories - Part I

To add an auxiliary sensor with its performance characteristics (calibration values, limits, etc.) for monitoring, it must be activated through the calibration constant. If minimum and maximum alarms are desired, limits can be added to the calibrated sensors. The fan, shaft or flow sensor can be monitored with high or low alarm values or no value.

• Shaft and Fan

01 - Select the accessory **(A)**, go to the START button **(B)** and press ENTER. After calibration has started, the button will switch to STOP **(B)** and the factor will start to accumulate.



SCREEN: SETTING THE SPEED

02 - During the rotation count, turn the shaft or fan on the number total rotations.

03 - Stop the calibration by pressing ENTER. The factor will stop accumulating.

04 - Using ◀ ▶ , select the number of turns box (under the calibration number) and change the number of turns turned with ▲ ▼.

05 - Configure the maximum/minimum limits **(B)**.

When the new values have been entered, press ESCAPE or ▶ (operation) to return to the OPERATION SCREEN.

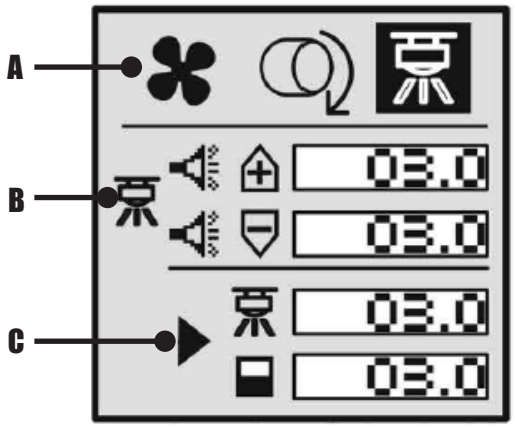
OPERATION MANUAL PMB 400 (OPTIONAL)

- **Setting the Accessories - Part II**

- **Flow**

It is worth remembering that an adequate method is needed to determine the volume of material (scale, graduated glass or a collecting shell) to calibrate the monitor.

01 - Select the accessory **(A)**, go to the START button **(B)** and press ENTER. After calibration has started, the button will switch to STOP **(B)** and the factor will start to accumulate.



SCREEN: SETTING THE SPEED

02 - Once the desired quantity is dispensed, stop dispensing. The factor will stop accumulating.

03 - Measure the amount of material that was distributed.

04 - Using ◀ ▶ select the tank volume box (below the calibration number) and change the distributed volume with ▲ ▼.

05 - Configure the maximum/minimum limits **(B)**.

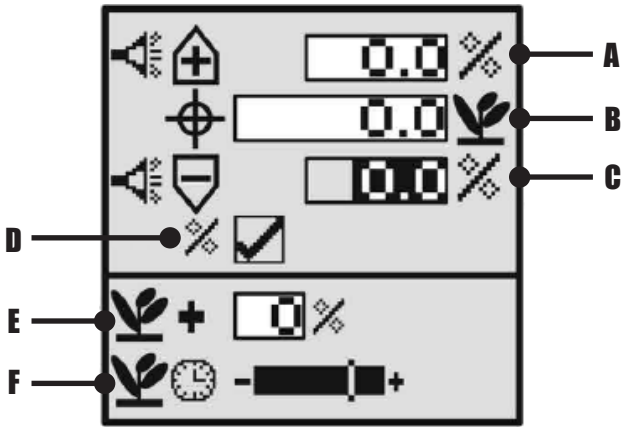
When the new values have been entered, press ESCAPE or ▶ (operation) to return to the OPERATION SCREEN.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the seed population

Press  to access the SETTING THE SEED POPULATION screen. This screen allows the user to define different population characteristics.

01 - Define the desired target population of seeds **(B)**.



SCREEN: POPULATION CONFIGURATION

NOTE: If no population value is selected, the monitor will use the population average as the calculation basis for alarm and line indicators.

02 - Define the values for the maximum **(A)** and minimum **(C)** limits that be accepted as a percentage or basic values;

NOTE: If you use basic values, it is important to note that the comma indicates thousands.

03 - Define, if necessary, the adjustment factor **(E)** for more or less population;

NOTE: The population adjustment factor is available to provide the result and show the population as close to the real. This is useful when the sensors do not detect double, triple, etc.

04 - In field **(F)**, slide to the right to obtain a high population response rate and to the left for a low population response rate.

NOTE: This feature is used to ensure uniformity in the display of the seed population for planters with few rows versus planters with many rows.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting auxiliary Modes

The lift switch can be used to more accurately monitor the area accumulator. It automatically disables the counter while the planter is not planting, thus avoiding accumulating the non-planted area.

⚠ ATTENTION | **Alarms are disabled in these modes.**

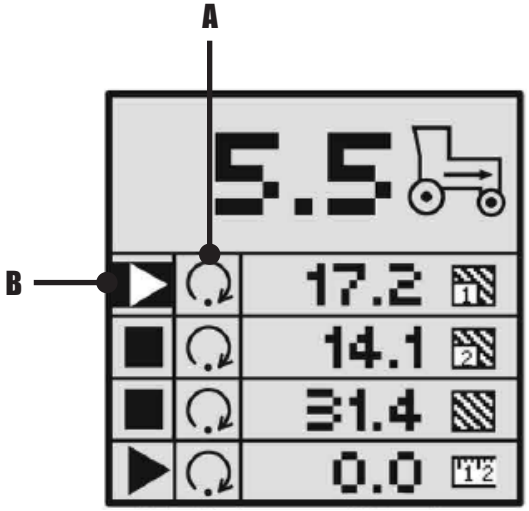
• Speed, Area and Distance

In this mode, the travel speed, the area and the distance covered are displayed. The mode includes start/stop/restart for monitoring.

To enter this mode press the key  .

01 - Select button  **(B)**;

02 - Start the count by pressing  . After counting has started, the button will switch to  (STOP) and the factor will start to accumulate;



SCREEN: SPEED, AREA AND DISTANCE

03 - Press  (the count will pause).

04 - Press  again. The factor accumulate again.

To reset the counter:

01 - Press  to select the (RESET) button  ;

02 - Press  .

OPERATION MANUAL PMB 400 (OPTIONAL)

• Seed Count

The seed counting mode can be used to determine the performance of the rows when operating the planter in stationary mode.

To enter this mode press the key 

.

01 - Select button  **(B)**;

02 - Start the count by pressing 

After counting has started, the button will switch to  (STOP) and the factor will start to accumulate;

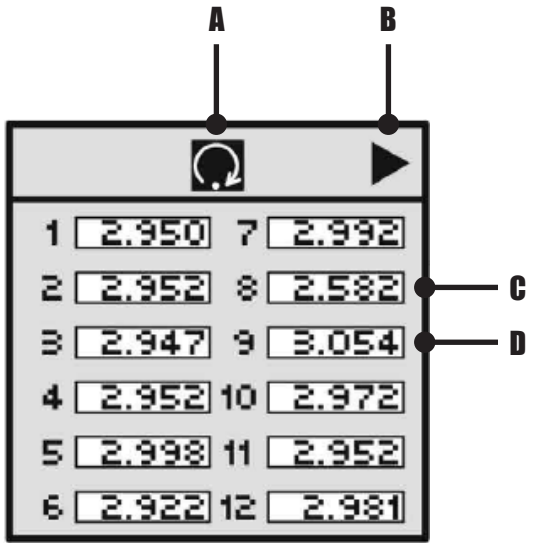
03 - Press 

(the count will pause).

04 - Press 

again. The factor accumulate again.

In the example opposite, line 8 **(C)** is marking less seeds than desired, while in line 9 **(D)** it is marking more seeds.



SCREEN: SEED COUNT

To reset the counter:

There are two ways to reset the counter.

01 - Press  to select the (RESET) button  and press 

;

02 - Press 

to exit seed counting mode and press 

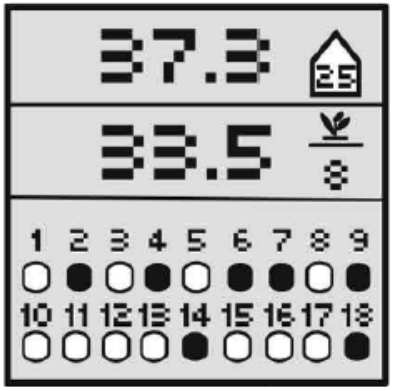
.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Display - Top Half of the Operation Screen

Through the user interface settings it is possible to select the functions that can be displayed on the screen. If more functions are selected than the screen availability, then the keys  are used to scroll between the functions, and it is possible to view up to 25 functions. See the example. If 8 functions are selected:

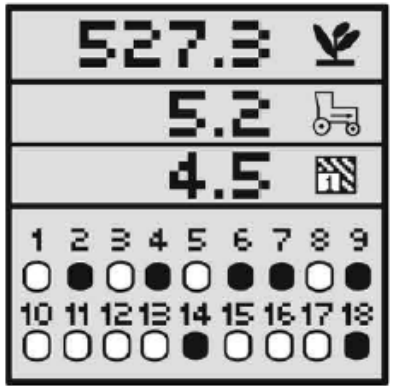
- Average Plant Population.
- Travel Speed.
- Planting Area 1.
- Total Area.
- Fan RPM.
- Maximum/Average/Minimum Population.
- Spacing between seeds.
- Checking Seed Variation by Distance.



SCREEN: TOP DISPLAY

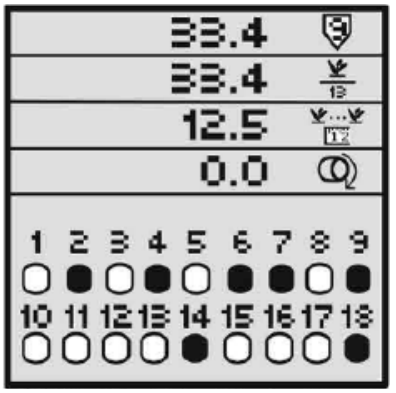
If the screen is set to display 3 functions, the operation screen will display functions 1, 2 and 3.

When  is pressed, the screen will show functions 2, 3 and 4.



SCREEN: TOP DISPLAY

The next touch on the  screen will show functions 3, 4 and 5. Returning to item 1 when the screen is showing functions 7, 8 and 1.

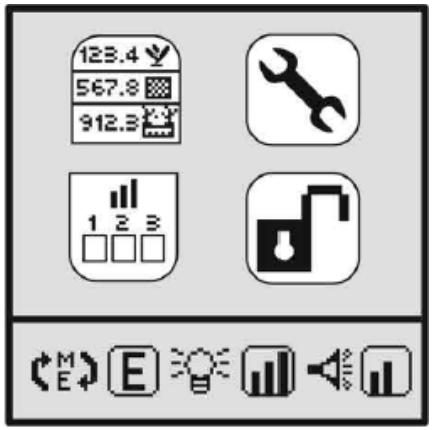


SCREEN: TOP DISPLAY

OPERATION MANUAL PMB 400 (OPTIONAL)

• Number of Functions to Display

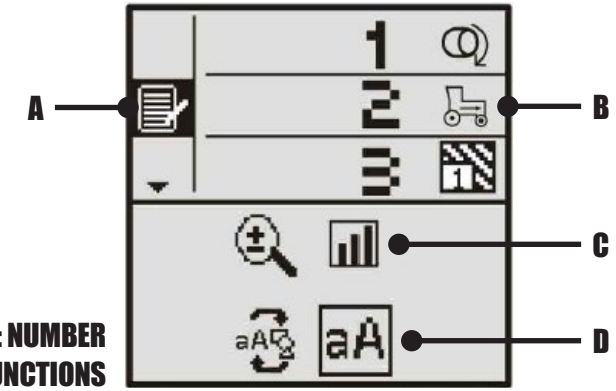
01 - Press  to enter the display settings screen;



SCREEN: TOP DISPLAY SETTING

02 - Press  to enter the settings screen;

03 - Select the functions to display option **(A)** and press  ;



SCREEN: NUMBER OF FUNCTIONS

04 - Use the arrows  to choose the functions **(B)** that will be visible on the operation screen;

05 - Select the option of the number of functions to display **(C)**;

06 - Press  ;

07 - Use  to change the number of functions to display on the screen.

08 - Select the graphic/text mode **(D)**;

09 - Press  ;

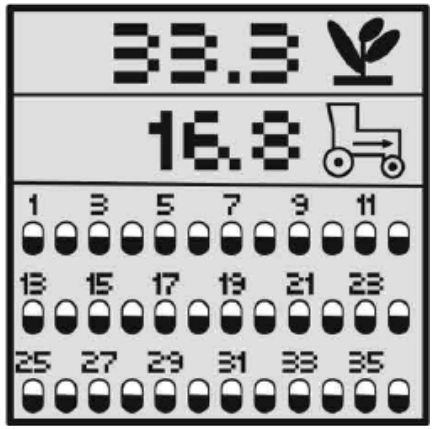
10 - Use  to change mode.

When the new values have been entered, press  or  (operation) to return to the OPERATION SCREEN.

OPERATION MANUAL PMB 400 (OPTIONAL)

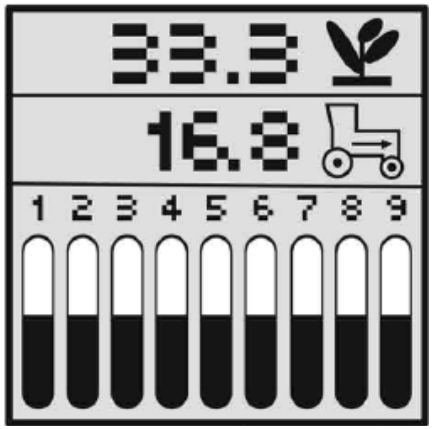
• Setting the Display - Lower Half of the Operation Screen

The number of connected lines shown in the lower half of the screen is defined by the user, thus varying the size of the numbers.



SCREEN: GRAPHIC WITH 36 LINES

The monitor will automatically count through the lines at 3-second intervals when the line is connected.



SCREEN: GRAPHIC WITH 09 LINES

The operator can use usar  to manually select which line to monitor. Automatic counting will restart in 10 seconds after manual selection.

SCREEN: GRAPHIC WITH 18 LINES

OPERATION MANUAL PMB 400 (OPTIONAL)

• Indicator type to display

01 - Press  to enter the display settings screen.

02 - Select  to enter the settings screen and choose the option to display the indicator;

03 - Press  ;

04 - Use  to change the indicator mode:

 - Bar chart

 - Symbols

 - Symbols flashing in proportion to the planting rate

 - Cleaning pressure gauge

05 - Select the option of the number of indicators to display **(A)** on the operation screen;

06 - Press  ;

07 - Use  to change the number of indicators to display **(A)** on the operation screen.

When the new values have been entered, press  or  (operation) to return to the OPERATION SCREEN.

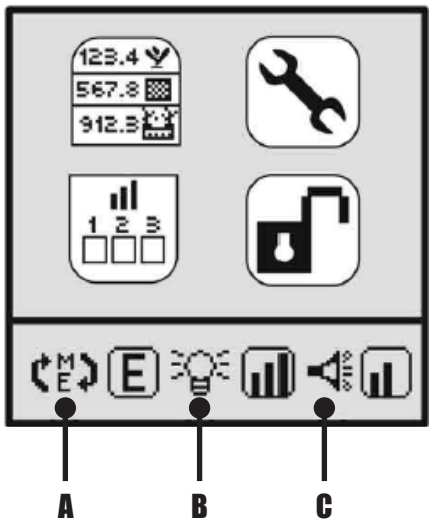
OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Measurement System, Display, Lighting and Alarm Volume

Press  to configure the measurement system, display illumination and alarm volume.

NOTE: At the bottom of the screen are icons for settings.

SCREEN: SETTINGS



01 - Press  to configure the measurement system, the display lighting the volume of the alarms.

02 - Switch between METRIC and ENGLISH as desired;

03 - Press ENTER to accept the new configuration;

04 - Select the display lighting icon **(B)** using ◀ ▶ and pressione ENTER;

05 - Use ▲ ▼ to select the lighting level of the display. There are 03 lighting levels that can be chosen.

06 - Press ENTER to accept the new configuration;

07 - Select the alarm volume icon **(c)** usando ◀ ▶ and press ENTER;

08 - Use ▲ ▼ to select the alarm volume level. There are 03 volume levels that can be chosen;

09 - Press ENTER to accept the new configuration.

When the new values have been entered, press ESCAPE or ▶ (operation) to return to the OPERATION SCREEN.

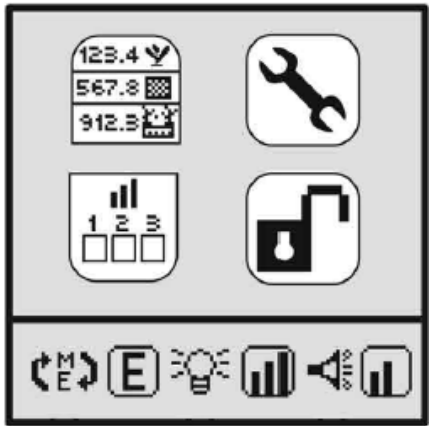
OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Security Password - Part I

The monitor's security system allows a security password to be entered, protecting the system from access by unauthorized persons to change settings data.

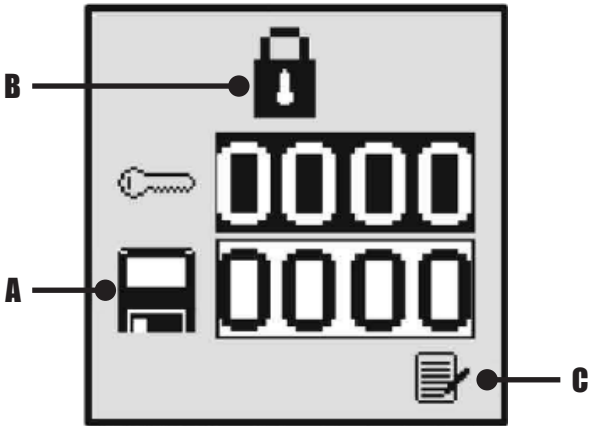
NOTE: A screen list allows the operator to lock screens individually to ensure they are not modified.

Press  to enter the display settings screen and choose  :



SCREEN: DISPLAY CONFIGURATION

01 - Select the disk icon **(A)** using  ;



SCREEN: PASSWORD SETTING

02 - Press  to enter the password;

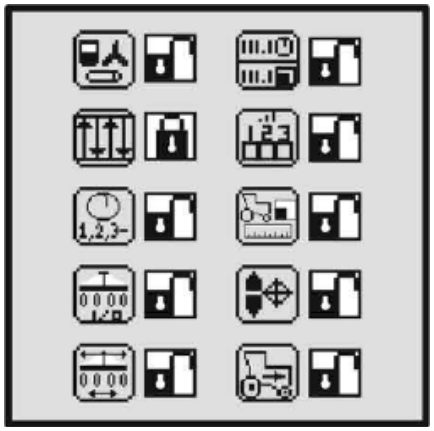
03 - Modify the digits with  and press  to accept the new password;

04 - To lock the screens individually, select the icon **(B)** and press  to enter the list of screens;

PMB 400 MANUAL

OPERATION MANUAL PMB 400 (OPTIONAL)

• Setting the Security Password - Part II



SCREEN: PASSWORDS BY FUNCTION

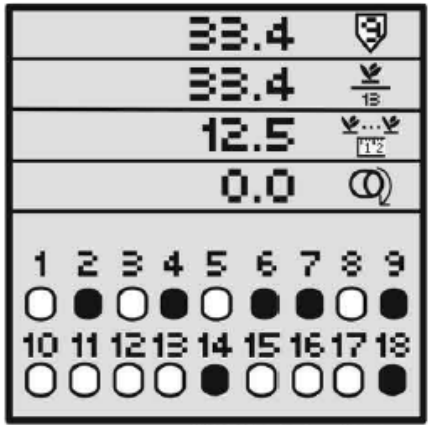
01 - Using  , lock or unlock the desired screens, closing or opening the lock icon next to each screen;

02 - Press  to return to the password screen;

03 - Select the lock **(c)** and press  to switch from unlocked to locked. The selected screens will be locked and you will need to enter the password to make the changes.

• General Information on Function Monitoring - Part I

The operator can choose 2, 3 or 4 functions for simultaneous monitoring and can select several others to be viewed.



SCREEN: DISPLAY

The monitor's operation screen provides monitoring functions.
No matter where the user has navigated in the settings screens, security or auxiliary modes, pressing the key  repeatedly the system will return to the operation screen. The operation screen is divided into two halves, upper and lower.
The upper half provides the user-definable output parameters (population, area, speed, etc.) while the lower half is dedicated to line information.

OPERATION MANUAL PMB 400 (OPTIONAL)

• General Information on Function Monitoring - Part II

NOTE: For more information and how to configure the operation screen, see “Settings on the Operation Screen”.

AVERAGE PLANT POPULATION

The function shows the average plants per row in seeds per hectare or seeds per acre that are set for population. The population response rate and population adjustment can be modified on the target settings screen.

NOTE: This function can be identified with a symbol or text, depending on the text/graphic setting.

MAXIMUM/AVERAGE/MINIMUM POPULATION

The function alternates the display in minimum, average and maximum population every 2 seconds, indicating the corresponding line.
When maximum or minimum populations are being shown, the corresponding symbol is shown with the line number.

LINE POPULATION CHECK

The function shows the population of each row of the planter. The monitor switches between the active lines every 2 seconds. After the last line is displayed, the monitor returns to the first active line and starts another verification sequence.

SPACE BETWEEN SEEDS

The function shows variation in seed spacing.
This function can be identified with a symbol or text, depending on the text/graphic setting.

MAXIMUM/AVERAGE/MINIMUM SPACING

The function switches the display in minimum, medium and maximum spacing every 2 seconds.
When maximum or minimum spacing is being shown, the corresponding symbol is shown with the line number.

• General Information on Function Monitoring - Part III

CHECKING SPACE BETWEEN SEEDS

The function shows the spacing between the seeds of each row. The monitor switches between the active lines every 2 seconds. After the last line is displayed, the monitor returns to the first active line and starts another verification sequence.

SEED VARIATION BY DISTANCE

The function shows the variation of the seed population of each row of the planter in spacing of seeds by distance according to the configuration. This function can be identified with a symbol or text, depending on the text/graphic setting.

MAXIMUM/AVERAGE/MINIMUM SEED VARIATION BY DISTANCE

The function switches the display in minimum, average and maximum variation every 2 seconds.
When maximum or minimum variations are being shown, the corresponding symbol is shown with the line number.

CHECKING SEED VARIATION BY DISTANCE

The function shows the variation between the seeds of each row. The monitor switches between the active lines every 2 seconds. After the last line is displayed, the monitor returns to the first active line and starts another verification sequence.

PLANTING AREA 1

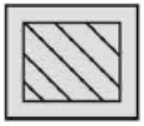
The function shows the planting area in hectares or acres, depending on the selected unit.
This function will identify a planting area chosen for marking, where it can be reset or stored.
It can be identified with a symbol or text, depending on the text/graphic setting.

OPERATION MANUAL PMB 400 (OPTIONAL)

• General Information on Function Monitoring - Part IV

PLANTING AREA 2

The function shows the planting area in hectares or acres, depending on the selected unit.
This function will identify another planting area chosen for marking, as the operator will be able to choose any area, regardless of Planting Area 1, and may also zero or store that area.
It can be identified with a symbol or text, depending on the text/graphic setting.



TOTAL PLANTING AREA

The function shows the total planting area in hectares or acres, depending on the selected unit.
The Total Area can also be reset to zero, and can start marking again.
This function can be identified with a symbol or text, depending on the text/graphic setting.

NOTE: The Total Planting Area is stored in the Tools option in the "Display and Service Settings" menu 

.

DISPLACEMENT SPEED

The function shows the displacement speed of the planter in Miles per hour (mph) or Kilometers per hour (Km/h), depending on the selected unit.
This function can be identified with a symbol or text, depending on the text/graphic setting.

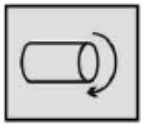
AREA PER HOUR

The function shows the area rate per hour in hectares per hour (Ha/h) or acres per hour (AC/h), depending on the selected unit.
This function can be identified with a symbol or text, depending on the text/graphic setting.

FAN RPM

The function shows the fan speed in revolutions per minute (rpm).
This function can be identified with a symbol or text, depending on the text/graphic setting.

• General Information on Function Monitoring - Part V



SHAFT RPM

The function shows the rotation of the shaft in revolutions per minute (rpm). This function can be identified with a symbol or text, depending on the text/graphic setting.

FLOW

The function shows the material flow rate in gallons per acre (g/ac) or liters per hectare (l/ha).
This function can be identified with a symbol or text, depending on the text/graphic setting.

• Alarms

Two audible alarm beeps are emitted during navigation or data entry indicating some illegal operation or wrong keystroke.
The warning screen for illegal operation appears on the display, informing the operator of the type of problem.
Every audible alarm is accompanied by a visual alarm, which informs the type of problem that is occurring

Whenever an audible warning or a warning screen appears on the display, it indicates that a problem is occurring. Correct the problem before continuing planting.

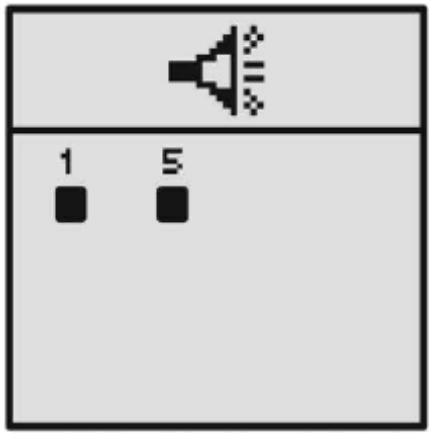
⚠ ATTENTION

The key  **can be used to cancel this alarm, but not to solve the problem.**

• Alarm Types - Part I

• Line Block

When the fertilizer line becomes clogged or the seed falls is blocked, two alarm beeps are emitted and the warning screen shows the lines that are in trouble.



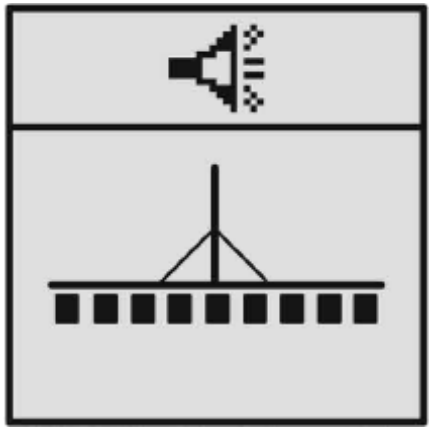
SCREEN: LINE BLOCK

OPERATION MANUAL PMB 400 (OPTIONAL)

- **Alarm Types - Part II**

- **Failure on All Lines**

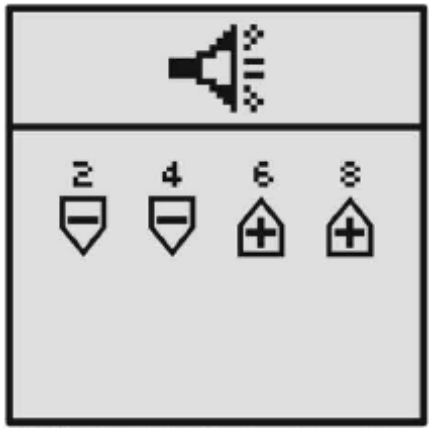
Eight audible alarm beeps are heard and the failure warning screen on all lines will be displayed, which may indicate the planter's lift.



SCREEN: LINE FAILURE

- **High/Low Population Limits Exceeded**

The alarm sounds a whistle-like sound and the limit exceeded warning screen is displayed.



SCREEN: UPPER AND LOWER LIMITS

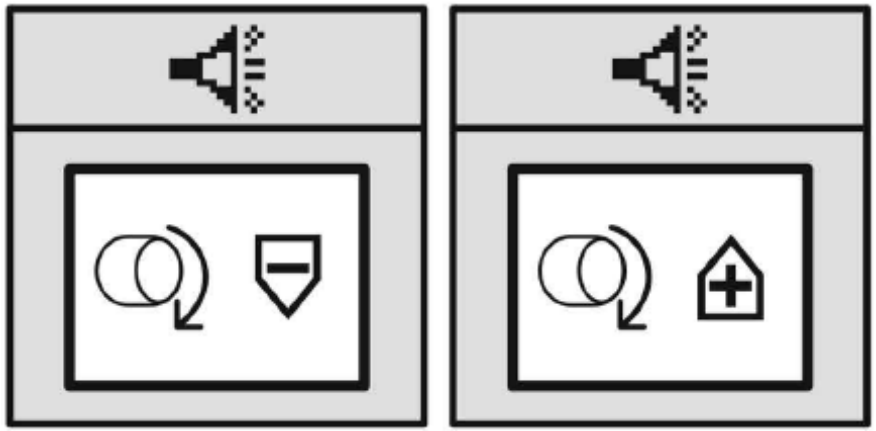
The symbols shown on the screen alert you if the limit has been exceeded  for (more) or for  (less) and the numbers indicate which seed lines have exceeded the limits.

OPERATION MANUAL PMB 400 (OPTIONAL)

- **Alarm Types - Part III**
- **Accessory High/Low Exceeded (Optional)**

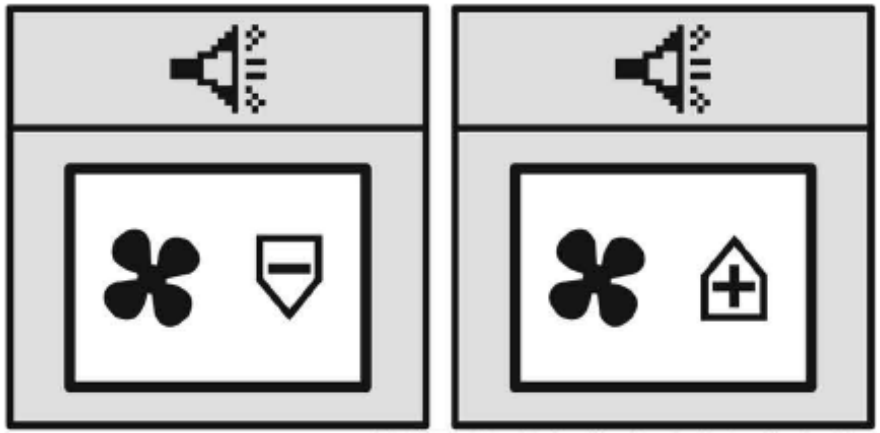
The alarm sounds constantly until the symptom is resolved and the limit exceeded warning screen is displayed:

- Warning display of fan speed limit exceeded;



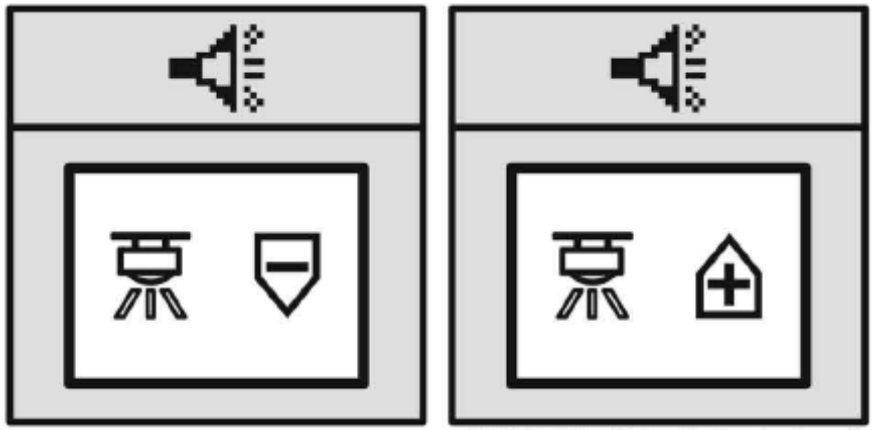
SCREEN: FAN ROTATION LIMIT

- Warning display of shaft rotation limit exceeded;



SCREEN: SHAFT ROTATION LIMIT

- Pressure limit warning display exceeded;

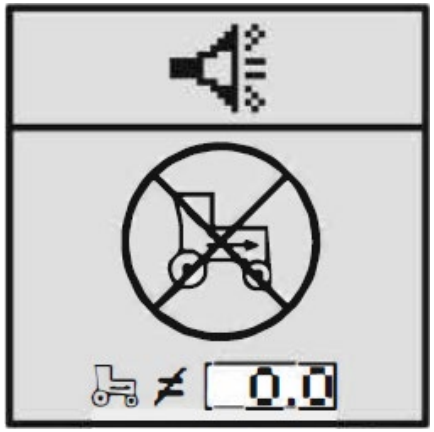


SCREEN: PRESSURE LIMIT

• Alarm Types - Part IV

• Lack of Travel Speed

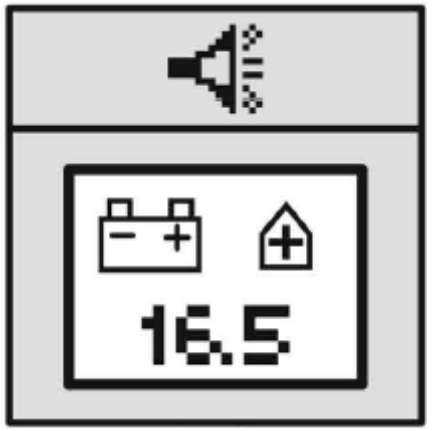
When planting without marking the machine's travel is detected, the alarm sounds until the problem is solved. The travel speed warning screen will be displayed.



SCREEN: LACK OF SPEED

• Self-test Failure

When it is detected that the battery voltage is insufficient or exceeds the maximum voltage limit, the self-test alarm sounds. The self-test failure warning screen will be displayed.



SCREEN: SELF-TEST FAILURE

• Maximum Travel Speed Exceeded (Optional)

When detected, the audible alarm sounds until the travel speed is adjusted within the configured range. The Maximum Speed Exceeded warning screen will be displayed.

SCREEN: SPEED FAILURE

• Troubleshooting - Part I

ERROR: THE MONITOR DOES NOT TURN ON.

PROBABLE CAUSE: Monitor fuse blown.

CORRECTIVE ACTION: Inspect the fuse (located near the battery). If necessary, replace with a fuse of a maximum of 7.5 A. If the fuse blows again, inspect all harnesses for dents or breaks that could cause a short circuit with the grounding.

PROBABLE CAUSE: Bad battery connection.

CORRECTIVE ACTION: Make sure that the connections are clean and tightened correctly. Inspect the harnesses for damage.

PROBABLE CAUSE: Low battery voltage.

CORRECTIVE ACTION: The monitor voltage must be at least 10V. If it is lower, recharge or replace the battery.

ERROR: LINE FAILURE OR HIGH/LOW ALARM IN LINE PLANTING PROPERLY.

PROBABLE CAUSE: Seed sensor covered with dirt.

CORRECTIVE ACTION: Clean the sensor using the brush that came with the equipment.

PROBABLE CAUSE: Defect in the sensor or harness.

CORRECTIVE ACTION: Turn on the sensor and see the troubleshooting LED. If the sensor does not have an LED, replace the harness connection with a nearby sensor to determine if the sensor is damaged.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

• Troubleshooting - Part II

ERROR: TANK ALARM DOES NOT SOUND WHEN EMPTY.

PROBABLE CAUSE: Tank sensor covered with dirt.

CORRECTIVE ACTION: Clean the sensor using the brush that came with the equipment.

PROBABLE CAUSE: Short-circuit sensor or harness failure.

CORRECTIVE ACTION: Change the harness connection with another sensor to determine if the problem is with the sensor or the harness.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

ERROR: TANK ALARM SOUNDS WHEN FULL.

PROBABLE CAUSE: Broken sensor or harness failure.

CORRECTIVE ACTION: Monitor detected a different number of sensors than the I/O line configuration. Make sure that all lines are being detected d uring the self test. Replace defective sensors.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

OPERATION MANUAL PMB 400 (OPTIONAL)

• Troubleshooting - Part III

ERROR: SYSTEM VOLTAGE ALARM.

PROBABLE CAUSE: Low battery voltage.

CORRECTIVE ACTION: The monitor voltage must be at least 10V. If it is lower, recharge or replace the battery.

PROBABLE CAUSE: Battery faulty contact.

CORRECTIVE ACTION: Check that the connections are clean and tight.

PROBABLE CAUSE: Damaged harness.

CORRECTIVE ACTION: Inspect all harnesses for damage or breakage that can cause a short circuit.

ERROE: AUXILIARY MODE ALARM SOUND WHEN THE SHAFT, FAN, OR FLOW ARE IN PROGRESS.

PROBABLE CAUSE: Sensor failure.

CORRECTIVE ACTION: Shaft, fan, or flow sensor not operating. Replace the defective sensor.

PROBABLE CAUSE: Wrong calibration number.

CORRECTIVE ACTION: Incorrect calibration sensor number. Check the calibration number on the accessories setup screen.

PROBABLE CAUSE: Incorrect sensor limits.

CORRECTIVE ACTION: Sensor limits are incorrect. Check the limits on the setting the accessories screen.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

• Troubleshooting - Part IV

ERROR: TRAVEL SPEED ALARM SOUND WITH THE MACHINE IN MOTION.

PROBABLE CAUSE: Travel speed sensor failure.

CORRECTIVE ACTION: Travel speed sensor is not detected. Replace the defective sensor.

ERROR: MONITOR FAILURE.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

ERROR: ALARME DE VELOCIDADE MÁXIMA EXCEDIDA SOANDO.

PROBABLE CAUSE: Maximum travel speed alarm set to slow.

CORRECTIVE ACTION: Set the travel speed limit to faster or zero to disable.

PROBABLE CAUSE: Incorrect speed constant.

CORRECTIVE ACTION: Speed sensor has not been calibrated, RADAR sensor angle has been changed, or an incorrect constant has been entered. Use SPEED - AREA - DISTANCE mode to determine if the speed is correct. If it is incorrect, re-calibrate the speed constant.

ERROR: SELF-TEST ALARM.

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosytem.

ETD MANUAL

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

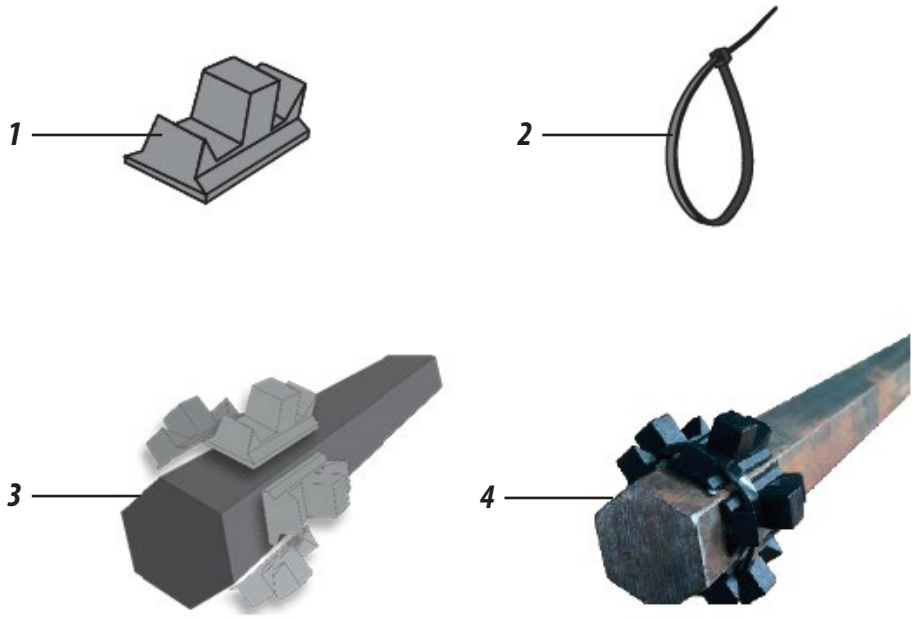
• Presentation

The **ETD** is an electronic device that can be connected to planters, seeders and fertilizers to assist the operator in setting the best gear ratio so that the correct dosage of seeds and fertilizers occurs, according to the needs of each area / plot, based on the adjustments previously done in the field and calibrations before planting. It allows to perform other additional functions such as the registration of planted hectares, hours actually worked and planting speeds above specified, and this important information is recorded and shown on the **ETD** electronic device display.

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

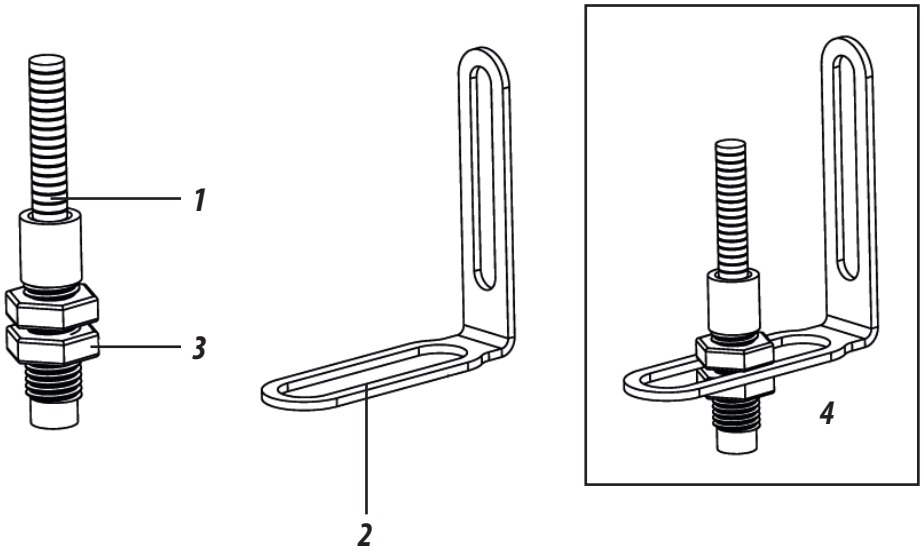
• Mounting the magnets on the main axis

The magnets (1) must be installed on the planter's primary axis, after the shutdown ratchet, as this will not count hours and hectares when the machine is in transport. A magnet must be installed on each face of the shaft (3), securing them with two nylon clamps (4) so that they are properly fixed and positioned (4).



• Mounting the speed sensor

Mount the sensor (1) on the support (2) fixing by the nuts (3) according to the image (4).

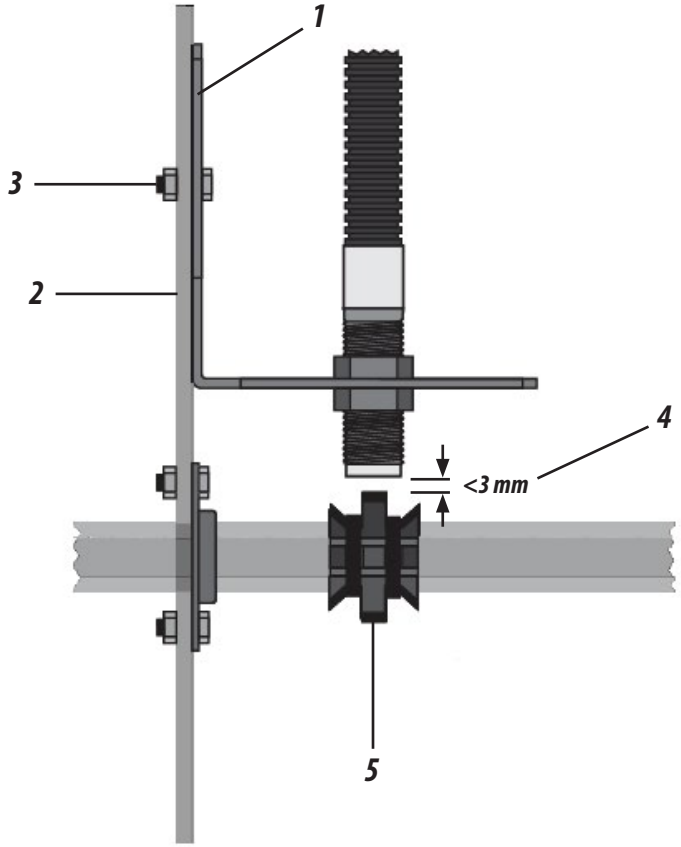


ETD MANUAL

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

• Speed sensor installation

Attach the sensor support (1) to the machine chassis (2) using the M8x30 screw (3) making sure that the distance between the sensor and the magnets is less than 3 mm (4). It is extremely important to align the speed sensor and the magnets on the primary axis (5).



• Identification

A - Display
B - Function key
C - Decrease item
D - Enter
E - Increase item

The ETD has four keys
Function key F **The Function key F is used to change between the four main functions of the ETD, which are:** **F1: Seed rate** **F2: Fertilizer rate** **F3: Hour meter** **F4: Hectometer** **Within the menus, the Function F key assumes the "back" function, which facilitates navigation.**

Keys
The ▼ and ▲ keys are used to increase or decrease numeric items in the interface. The icon with arrows above and bellow the interface indicates the item to be controlled by the keys.  **Keys ▶** **The key ▶ is used as a "enter" function. This key allows you to enter the options that are shown in the lower right corner of the interface.**

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

• Settings menu

The settings menu (1) can be accessed through the Function key F, when pressed for more than 2 seconds.

The settings menu has 7 items. The keys ▲▼ (2) are used to navigate between menu items.

The Select key. ▶ (3) is used to select the highlighted item. Just click on the "F" key (4) to exit the settings menu.

To select the start of the calibration click 'Yes' ▶ (1).

• Sensor calibration

When starting the sensor calibration (2), the machine must be moved for exactly 100 meters (3) and stopped.

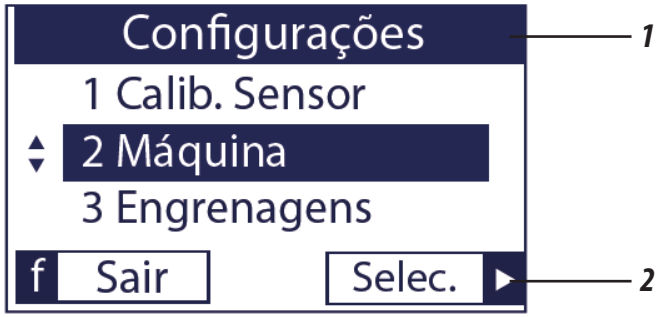
The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the ▶ (5) "Ready" key.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the working speed of the machine and also the distance covered in the fertilizer calibration.

If, during displacement, the number of pulses corresponding to the end of the 100m is not displayed, the displacement of the sensor or magnets may have occurred, making it impossible to read the pulses during the displacement. In this case, it is necessary to adjust these components according to the assembly diagram, item 4 "INSTALLING THE SPEED SENSOR", previous page.

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

• Machine



In the machine configuration (1), click on 'Select' ▶(2) to inform the number of lines using the buttons ▲▼ (3).

Number of lines, range of values: 01 ~ 80.

After selecting the number of lines contained in the machine, press the 'Prox' ▶ key (4) to select the line spacing using the buttons ▲▼ (5).

• Sensor machine

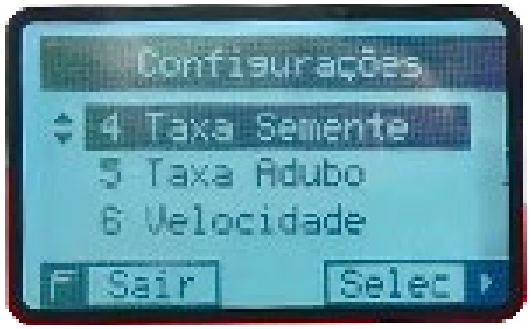
When clicking on "Save" ▶ (6), the system saves the settings and displays the following message.

This information is very important for the presentation of the worked hectares and also for the calibration of fertilizer rates.

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

• Seed rate - Part I

1) Select Seed Rate and click Select.



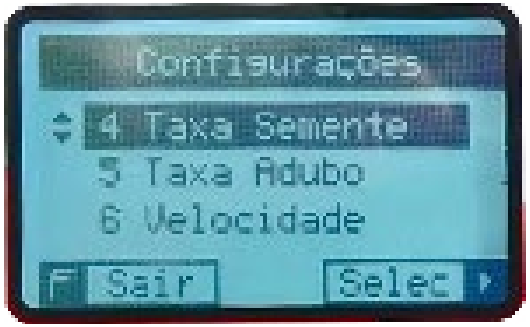
2) Then select CD Gears and click Select.

3) Then, keep the list below.

4) Click Fn to save.

5) Then select CD Gears and click Select.

6) Then select Seed Rate and click Select.



• Seed rate - Part II

7) Then select Change Disk and click Select.

8) Then, enter the number of holes in the disc according to the culture to be worked.

9) Then click save.

10) Then select Register Table and click Select.

11) IMPORTANT: Look in the physical table of Seed on the disk that will work and choose the average value. **Example:** B1.

12) Then type B1 and click Next.

• Seed rate - Part III

13) Then, keep the CxD Relationship and click next.

14) Then, keep the number of holes previously placed and click next.

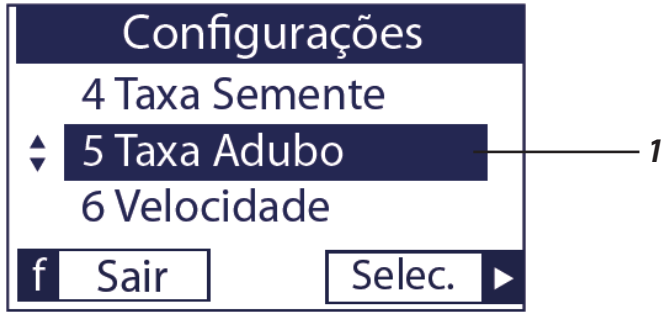
15) **NOTE:** Note that the seed rate value 4.9 corresponds to the B1 ratio of the SPEED BOX table; if different, redo the previous steps.

16) Then, when the value is correct, click save.

Then, select Fn (exit) and go to the FERTILIZER settings according to the instructions on the following pages.

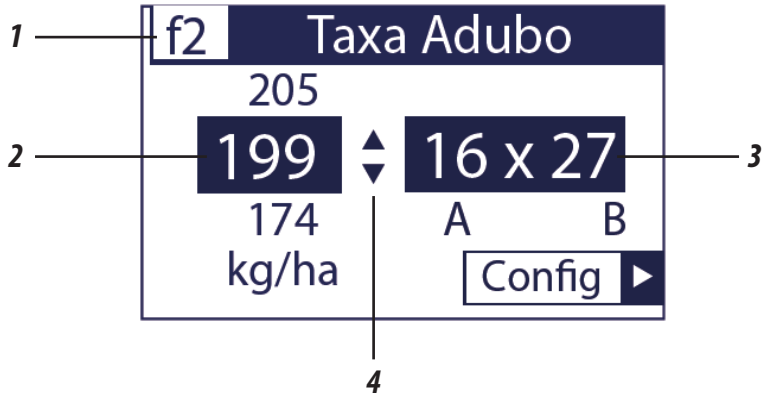
OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

• Fertilizer rate

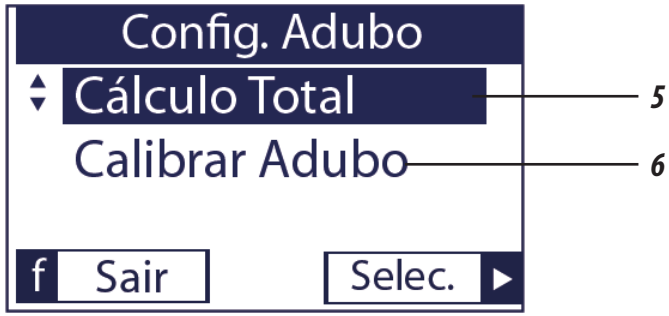


Screen F2 (1) indicates the fertilizer rate (2) in kg per hectare obtained with a specific gear ratio. Fertilizer rates are calculated according to the fertilizer calibration, the gear configuration (3) and the line spacing. The keys ▼ and ▲ (4) allow the user to navigate between the rate options in Kg / ha.

Taxa Adubo: ETD

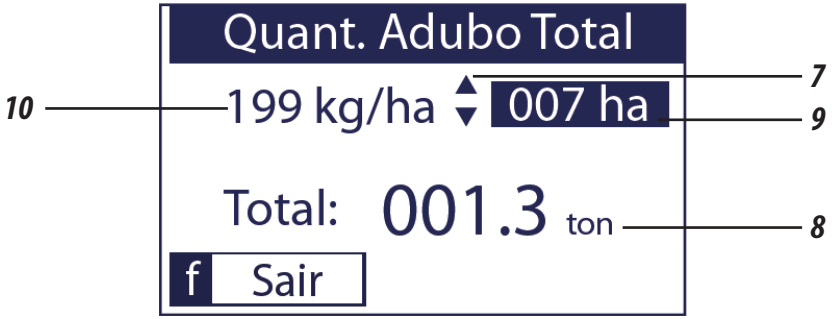


The fertilizer rate menu has two items: Total Calculation (5) and Calibrate Fertilizer (6).



• Total calculation

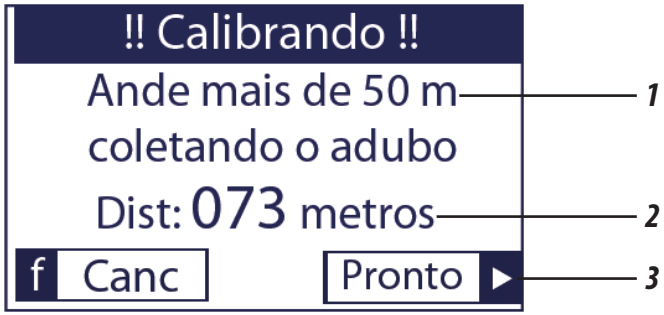
In total calculation (5), the user can calculate the amount of total fertilizer in tons (8) required for planting a certain area, in hectares. The last fertilizer rate selected on the F2 function screen (9), selected using the key ▲▼ (10) is used as a reference for the calculation.



• Calibrate fertilizer - Part I

The fertilizer calibration (11) has 3 steps. First, you must inform the gear ratio (12) used on the machine at the time of calibration. **EXAMPLE:** In the SPEED BOX, configure the option Mot 6 and Mov F, then enter the same configuration in the **ETD**; then walk 50 m collecting at least 3 fertilizer outlets, make the average and enter the value in the electronic table).

On the next screen, the operator must walk with the machine collecting the fertilizer over a distance greater than 50 meters (1). It is important that the sensor is already calibrated so that the distance covered is measured correctly. The distance traveled is displayed instantly (2).

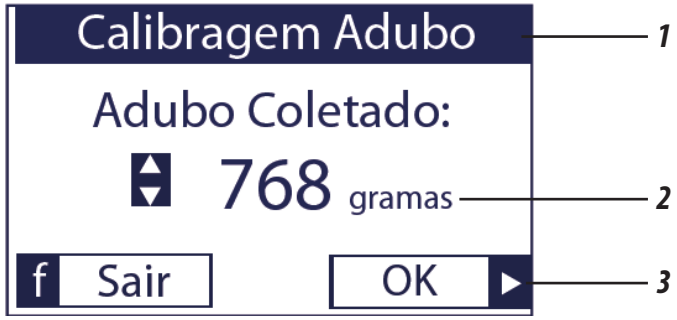


After covering the required distance, click on Ready (3).

NOTE: The minimum distance to be covered is 50 meters, if this distance is insufficient, the screen for entering the weight of the collection will not be enabled and the following warning will be displayed:

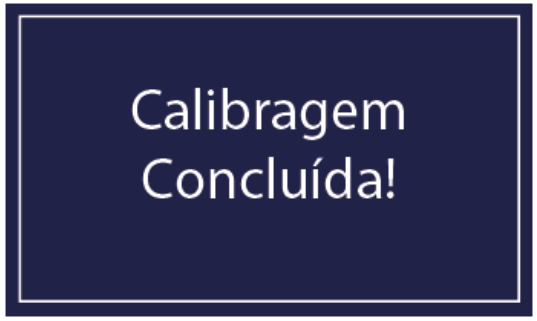
• Calibrate fertilizer - Part II

On the next screen (1), the total weight of the collected fertilizer (2) in a row or the average of the collection, always in grams, is reported.

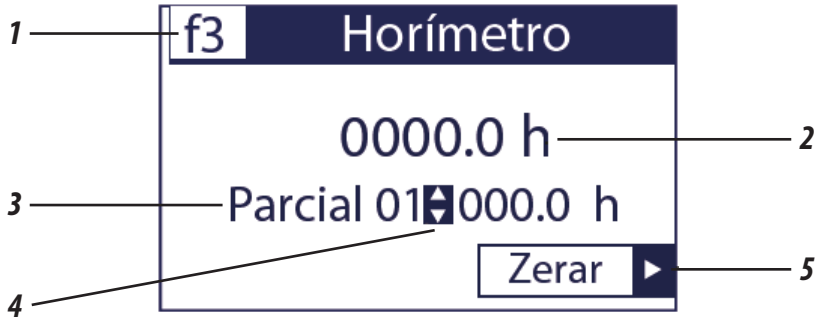


Compost collected, range of values: 10 ~ 9000 grams.

Clicking 'OK' (3) the 'calibration complete' message is displayed.



• F3 Hour meter

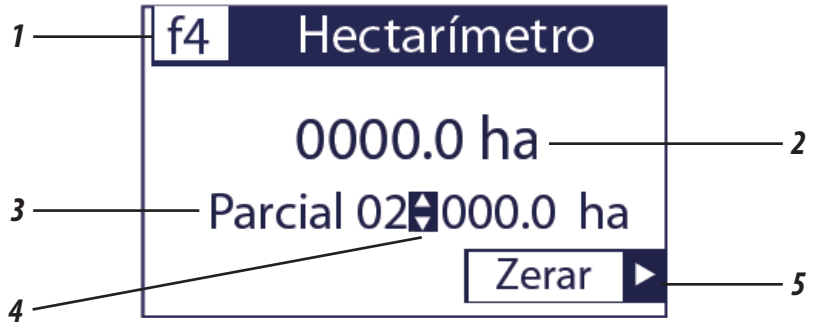


The F3 screen (1) indicates the total number of hours (2) of work with the ETD in three partials (3), which can be related to the keys ▲▼ (4).

To reset a certain partial, the Reset key (5) must be held down for more than 2 seconds.

The hours counted refer only to the time that the machine was in effective work, that is, with the ratchet on. Thus, hours of handling the ETD or traveling with the machine in the transport position will not be counted.

• F4 Hectometer



The F3 screen (1) indicates the total number of hours (2) of work with the ETD in three partials (3), which can be related to the keys ▲▼ (4).

• Settings menu - Part I

The settings menu (1) can be accessed through the Function key F, when pressed for more than 2 seconds.

The settings menu has 7 items. The keys ▲▼ (2) are used to navigate between menu items.

The Select key. ▶ (3) is used to select the highlighted item. Just click on the “F” key (4) to exit the settings menu.

• Settings menu - Part II

To select the start of the calibration click 'Yes' ▶ (1).

• Sensor calibration

When starting the sensor calibration (2), the machine must be moved for exactly 100 meters (3) and stopped.

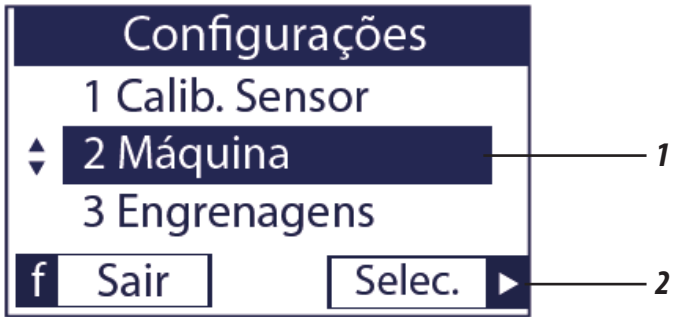
The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the ▶ (5) "Ready" key.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the working speed of the machine and also the distance covered in the fertilizer calibration.

If, during displacement, the number of pulses corresponding to the end of the 100m is not displayed, the displacement of the sensor or magnets may have occurred, making it impossible to read the pulses during the displacement. In this case, it is necessary to carry out the adjustment of these components according to the assembly diagram, item 4 "INSTALLING THE SPEED SENSOR", page 89.

OPERATION MANUAL ETD (ELECTRONIC DOSING TABLE) - OPTIONAL

- **Machine**



In the machine configuration (1), click on 'Select' ▶ (2) to inform theo number of lines using the buttons ▲▼ (3).

Number of lines, range of values: 01 ~ 80.

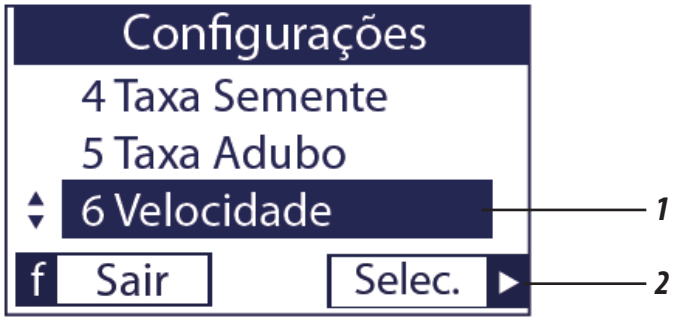
After selecting the number of lines contained in the machine, press the 'Prox' ▶ key (4) to select the line spacing using the buttons ▲▼ (5).

Espaçamento, faixa de valores: 01 ~ 99 cm.

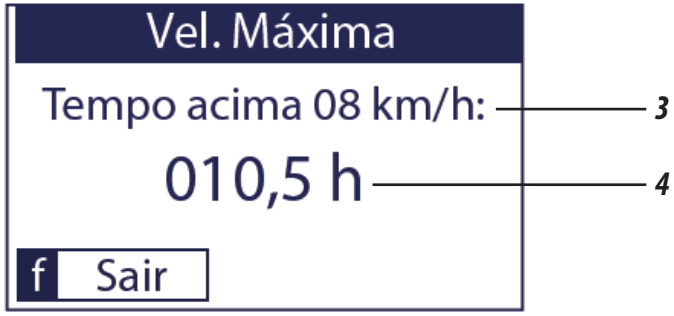
When clicking on "Save" ▶ (6), the system saves the settings and displays the following message.

This information is very important for the presentation of the worked hectares and also for the calibration of fertilizer rates.

- **Time above maximum speed**



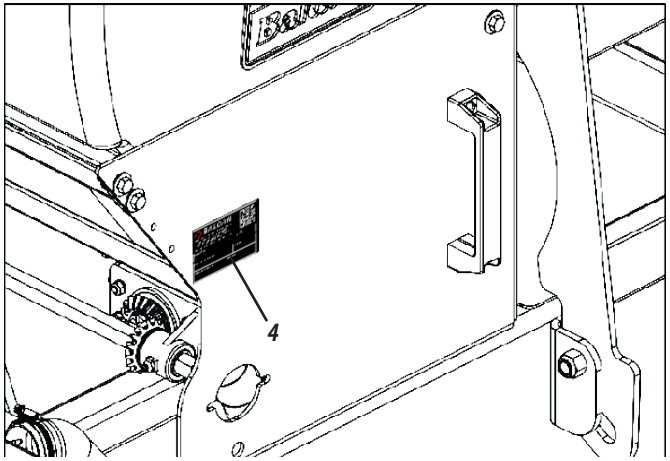
Clicking on 'Select.' ▶ (2) in the 'Speed' setting (1) will show how many hours (4) the machine has been working above the limit speed (3).



PRODUCT IDENTIFICATION

1- To consult the parts catalog or request technical assistance at Baldan, always identify the model (1), serial number (2) and manufacturing date (3), which can be found on the identification tag (4) of the seeder.

2- **ALWAYS DEMAND BALDAN ORIGINAL PARTS.**



Identify the data below to always have correct information about the life of your seeder.

Owner: _____

Resale: _____

Farm: _____

City: _____ *State:* _____

Warranty Certificate No.: _____

Model: _____

Serial No.: _____

Purchase Date: _____ *NF. Nº:* _____

⚠ ATTENTION

The drawings contained in this instruction manual are for illustrative purposes only. In order to provide a better view and detailed instructions, some drawings in this manual have removed the safety devices (covers, guards, etc.). Never operate the seeder without these devices.

PUBLICATIONS

Códe: 60550107662
CPT: SPEFLEX09323A

CONTACT

If in doubt, consult the After Sales.
Phone: 0800-152577
Email: posvenda@baldan.com.br

IDENTIFICATION

NOTES

WARRANTY CERTIFICATE

BALDAN IMPLEMENTOS AGRÍCOLAS S/A, guarantees normal operation of the implement to the reseller for a period of 6 (six) months counted from the delivery date on the reseller's bill of sale to the first final consumer.

During this period BALDAN is committed to repair any defects in materials and/or manufacturing at its own responsibility, as labor, shipping, and other expenses are the responsibility of the reseller.

During the warranty period, the request and replacement of any defective parts will be done at the regional reseller, and thereafter ship the defective part to BALDAN for analysis.

When it is not possible to perform such procedure and the capacity for resolving the problem Is exhausted by the reseller, the same shall request support from the BALDAN Technical Support Service, by filling out the specific form distributed to resellers.

After analysis of the replaced items by the BALDAN Technical Support Services is concluded and the replacement is not covered by the warranty, then it will be the responsibility of the reseller to pay all the related costs for the replacement; as well as expenses on materials, travel, including lodging and meals, accessories, lubricates used, and other expenses originating from the Technical Support Service call, thereby the BALDAN company is authorized to charge for the respective bill to the reseller's name.

Any repair done on the product within the validity date of the warranty period, will only be authorized by BALDAN by previous presentation of the quotation describing the parts and labor charges that will be performed.

It is excluded from this agreement, whenever the product undergoes official repairs or modifications from service centers that do not belong to the BALDAN reseller network, as well as the installation of aftermarket parts or components in the user's product.

This warranty will be nullified if the defect or damage is the result from improper usage that is non-compliant to the instructions or inexperience of the operator.

It is agreed to that this present warranty does not cover tires, polyethylene storage compartments, drive shafts, hydraulic components, etc. as the warranty coverage is from their own manufacturers.

Manufacturing or material defects, as stated in the purpose of this warranty agreement, does not constitute, under any hypothesis, a reason for purchase and sale contract termination, or the payment of indemnities of any nature.

BALDAN reserves the right to change and or perfect the technical characteristics of its products, and without any obligation to proceed in previously manufactured products.

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

1ª - Owner

CERTIFICATE

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.

CERTIFICATE

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

2ª - Reseller

INSPECTION AND DELIVERY CERTIFICATE

- **SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sales organization; all it parts were inspected according to the instructions from the manufacturer.
- **DELIVERY SERVICE:** The user was informed as to the terms of the applicable warranty and instructed on its usage and maintenance procedures.
- I hereby confirm I have been informed on the terms of the applicable warranty and instructed on its usage and maintenance procedures of the implement.

Implement: _____

Serial Number: _____

Data: _____ *Invoice:* _____

Reseller: _____ *City:* _____

State: _____ *Postal Code:* _____

Owner: _____ *Phone:* _____

Address: _____ *Number:* _____

City: _____ *State:* _____

E-mail: _____

Sales Date: _____

Signature / Reseller Stamp _____

3ª - Manufacturer

Please send a filled out copy in a maximum period of 15 days to BALDAN.

1.74.05.0059-5

AC MATÃO
ECT/DR/SP

ANSWER CARD

NO SEALING NEEDED

POSTAGE WILL BE PAID BY:

BALDAN

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.

Av. Baldan, 1500 | Nova Matão | Zip code: 15993-900 | Matão-SP | Brasil

Fone: (016) 3221-6500 | Fax: (0**16) 3382-6500**

Home Page: www.baldan.com.br | e-mail: sac@baldan.com.br

Export: Fone: 55 16 3321-6500 | Fax: 55 16 3382-4212 | 3382-2480

e-mail: export@baldan.com.br

BALDAN

Avenida Baldan, 1500
Nova Matão
15.993-900
Matão/SP - Brasil
sac@baldan.com.br
export@baldan.com.br

+55 16 3221 6500
baldan.com.br