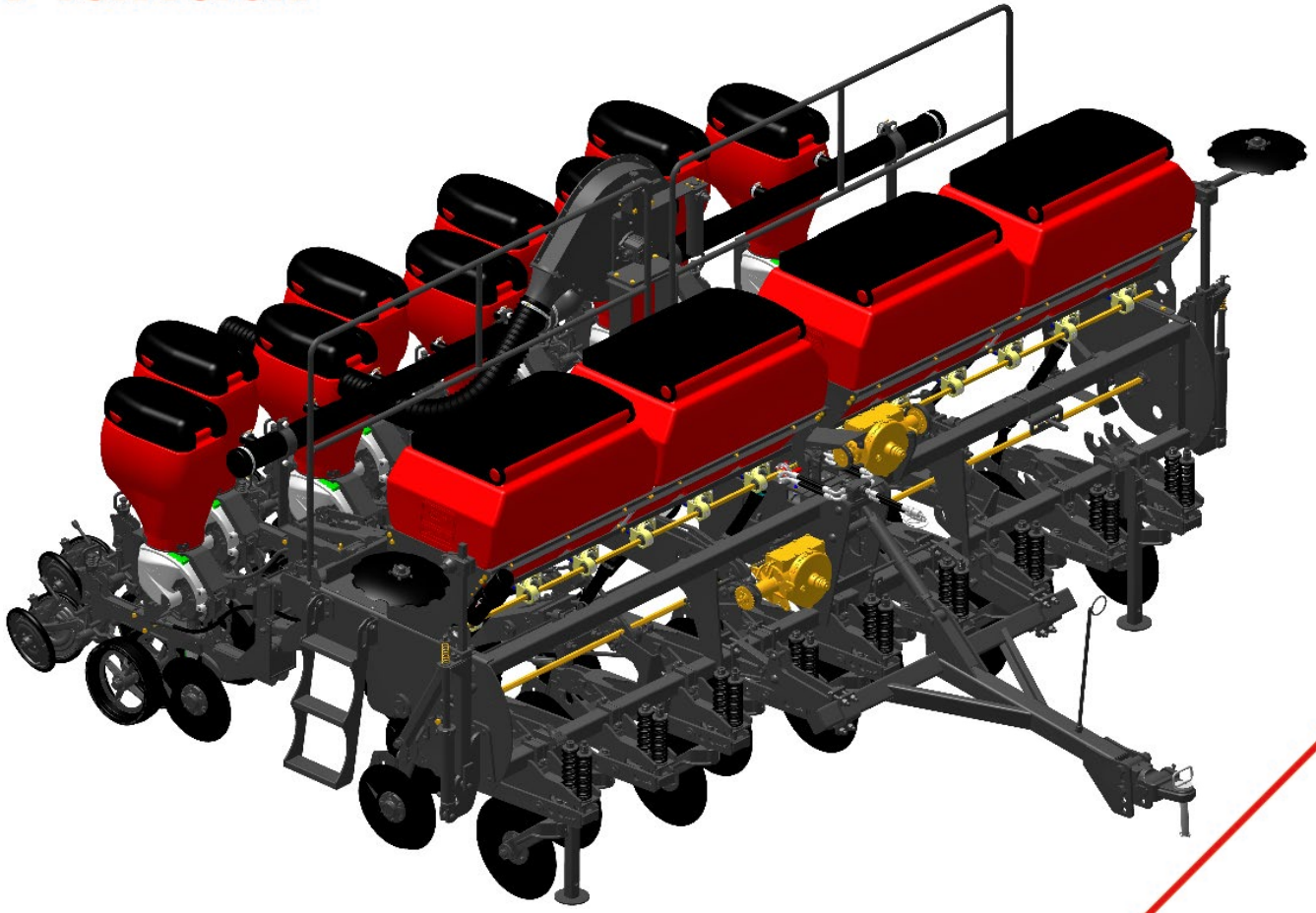
Instruction Manual



SPE TOP LINE FLEX AIR - SELENIUM / VSET

Precision Row Crop Planter

BALDAN

▪ Introduction

Thank you for your business and congratulations for the excellent choice you have just made, since you purchased a product manufactured with **BALDAN IMPLEMENTOS AGRÍCOLAS S/A** technology. This manual will guide you through the necessary procedures, from purchase to operation, safety and maintenance procedures.

BALDAN warrants that it has delivered this implement to the complete dealer and in perfect condition.

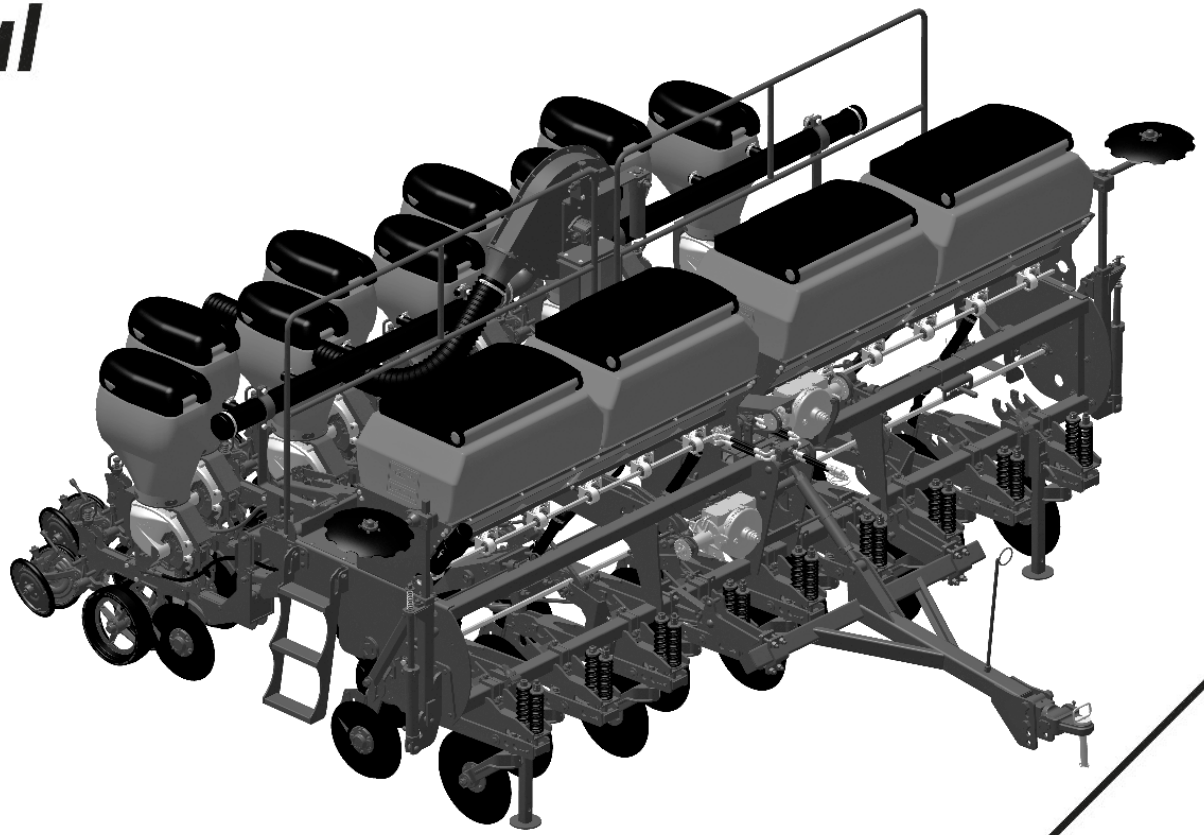
The dealer was responsible for the storage and conservation during the period it was in its possession, as well as for the assembly, retightening, lubrication and general overhaul.

In technical delivery, the dealer should guide the user customer regarding maintenance, security, their obligation to possible technical assistance, the strict observance of the warranty and reading the instructions manual.

Any warranty service claim should be made to the retailer where the implement was purchased.

We reiterate the need for a careful reading of the warranty certificate and for compliance with all items in this manual, as doing so will increase the life of your implement.

Instruction
Manual



SPE TOP LINE FLEX AIR - SELENIUM / VSET

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

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▪ Baldan 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 delivery date on the resale invoice to the first final consumer.

During this period, **BALDAN** agrees to remedy defects in materials and/or workmanship under its responsibility, the dealer being responsible for labor, freight and other expenses.

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

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

After analyzing the items replaced by **BALDAN's** Technical Support, and determining that such item is not covered by the warranty, then the dealer will bear the costs related to the replacement; as well as expenses for material, travel including accommodation and meals, accessories, lubricant used, and other expenses arising from requesting Technical Support, and **BALDAN** is authorized to bill such expenses on behalf of the dealer.

Any repair made to the product that is within the warranty period by the dealer will only be authorized by **BALDAN** upon presentation budget preview describing parts and labor to be performed.

It is excluded from this term the product that undergoes repairs or modifications in officials that 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 becomes void when it is found that the defect or damage is the result of improper use of the product, failure to observe the instructions or operator inexperience.

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

Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, reason for termination of the purchase and sale agreement, or for compensation 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 produced products.

▪ General Information

• To the owner

BALDAN IMPLEMENTOS AGRÍCOLAS S/A is not liable for any damage caused by accident arising from the use, transportation or improper or incorrect storage of its implement, either by negligence and/or inexperience of any person.

Only people with full knowledge of the tractor and the implement should transport and operate them.

BALDAN is not responsible for any damage caused in unpredictable situations or beyond the normal use of the implement.

Improper handling of this equipment may result in serious or fatal accidents. Before operating the equipment, carefully read the instructions 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's instruction manual.

⚠ ATTENTION

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

This Regulatory Standard aims to establish the principles to be observed in the organization and work environment, in accordance with the planning and development of agriculture, livestock, forestry, and aquaculture activities with work safety and health and the environment.

MR. OWNER OR EQUIPMENT OPERATOR.
Carefully read and comply with the contents 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

▪ Safety Standards

• To the operator

THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, PLEASE READ THE FOLLOWING MESSAGE CAREFULLY AND WATCH OUT FOR POTENTIAL PERSONAL ACCIDENTS.

⚠ ATTENTION

Read the instruction manual carefully for recommended safety practices.

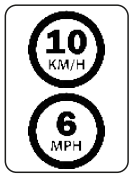
⚠ ATTENTION

Only start operating the tractor when properly seated and with a fastened seat belt.

⚠ ATTENTION

Do not make adjustments with the seeder in operation. When doing any service on the seeder, first turn off the tractor.
Use appropriate tools.

⚠ ATTENTION

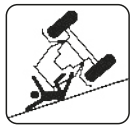


When transporting the seeder, do not exceed a speed of 10 km/h or 6 MPH, avoiding the risk of damage and accidents.

⚠ ATTENTION

Do not carry people on or inside the tractor or on the equipment.

⚠ ATTENTION

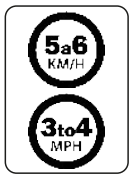


There is a risk of serious injury due to tipping over when working on sloped terrain. Do not use excessive speed.

⚠ ATTENTION

When checking hoses for leaks, use a piece of cardboard or wood, never use your hands.
Avoid incision of fluid in the skin.

⚠ ATTENTION



When working with the seeder, do not exceed a speed of 5 to 6 km/h or 3 to 4 MPH, avoiding the risk of damage and accidents.

⚠ ATTENTION

Do not work with the tractor if its front is not sufficiently weighted for the rear equipment. If it tends to lift, add weights or ballasts to the front of the machine or front wheels.

⚠ ATTENTION

Before doing any maintenance on your equipment, make sure it is properly stopped. Avoid getting run over.

⚠ ATTENTION

Always keep the access and work places clean of residues such as oil or grease, as they can cause accidents.

⚠ ATTENTION

Before working with or transporting the seeder, check for people or obstructions near the seeder.

▪ Safety Standards

⚠ ATTENTION | FOLLOW ALL RECOMMENDATIONS, WARNINGS AND RECOMMENDED SAFETY PRACTICES IN THIS MANUAL, UNDERSTAND THE IMPORTANCE OF YOUR SAFETY. ACCIDENTS CAN LEAD TO DISABILITY OR EVEN DEATH. REMEMBER, ACCIDENTS CAN BE AVOIDED!

⚠ ATTENTION

Avoid heating parts near fluid lines.
Heating can generate fragility in the material, breakage and release of pressurized fluid, which can cause burns and injuries.

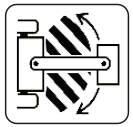
⚠ ATTENTION

Avoid accidents caused by the intermittent action of line markers.
When activating the seeder, check that there are no people under the line markers or in their area of action.

⚠ ATTENTION

Pressurized hydraulic oil under may cause serious injury if leaks occur. Periodically check the condition of the hoses. If there are signs of leaks, replace immediately. Before connecting or disconnecting hydraulic hoses, relieve system pressure by activating the control with the tractor off.

⚠ ATTENTION



Keep the articulation area free while the seeder is in operation. In sharp turns, keep the tractor wheels from touching the head.

⚠ ATTENTION

Be careful when handling the seeder support foot, as there is a risk of accidents.

⚠ ATTENTION

Do not operate the seeder if the transmission guards are not properly attached. Only remove guards to proceed with gear replacement, put them back immediately.
Do not make adjustments with the seeder in motion.

⚠ ATTENTION

• Improperly disposing of waste affects the environment and ecology, as it will be polluting rivers, canals or the soil. Find out about the correct way to recycle or dispose of waste.

PROTECT THE ENVIRONMENT!

⚠ ATTENTION

Always stay away from the seeder's active elements (discs), they are sharp and can cause accidents.
When servicing discs, wear safety gloves in your hands.

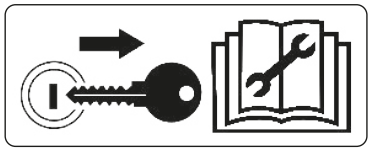
⚠ ATTENTION

Never weld the tire mounted wheel, the heat can cause the air pressure to build up and cause the tire to explode.
When inflating the tire, position yourself beside the tire, never in front of it. To inflate the tire, always use a containment device (inflation cage).

▪ Safety Standards

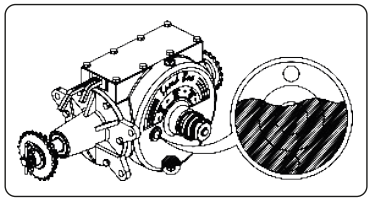
⚠ ATTENTION | FOLLOW ALL RECOMMENDATIONS, WARNINGS AND RECOMMENDED SAFETY PRACTICES IN THIS MANUAL, UNDERSTAND THE IMPORTANCE OF YOUR SAFETY. ACCIDENTS CAN LEAD TO DISABILITY OR EVEN DEATH. REMEMBER, ACCIDENTS CAN BE AVOIDED!

⚠ ATTENTION



Remove the ignition key before performing any maintenance on the seeding machine.Protect yourself from possible injury or death, caused by an unexpected seeding machine start-up.
If the seeder is not properly engaged, do not start the tractor.

⚠ ATTENTION



Check the oil level daily.
Change the Speed Box oil 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). Only use the original fuse from the factory, as only this one has a controlled hardness.

⚠ ATTENTION

The turbine may expel residues of toxic products used in seed treatment.

- Do not expose yourself to the air leaving the turbine when it is operating.

Carefully read the label of the product used to treat seeds.

- While handling, applying and planting, use Personal Protection Equipment (PPE).
- Wash your hands thoroughly after handling products.
- Treated seeds should not be exposed to people unrelated to the service, domestic animals, birds, nor allowed contact with human or animal consumption products.
- In case of intoxication due to inhalation or aspiration, keep the victim in a place with fresh air and seek a physician immediately, taking with you the chemical product label or packaging.

⚠ | POISONING SYMPTOMS: Weakness, headache, chest pressure, blurred vision, non-reactive pupils, excess of salivation, perspiration, nausea, vomiting, and abdominal cramps.

▪ Safety Standards

• PPE Equipment

⚠ ATTENTION | **DO NOT WORK WITH THE SEEDER WITHOUT FIRST WEARING PPE (SAFETY EQUIPMENT). IGNORING THIS WARNING MAY CAUSE HEALTH DAMAGES, SERIOUS ACCIDENT OR DEATH.**

When performing certain procedures with the seeder, place the following PPE (Safety Equipment) below:

IMPORTANT

The safety practice must be carried out in all stages of work with the seeder, thus avoiding accidents such as impact of objects, falling, noise, cuts and ergonomics, that is, the person responsible for operating the seeder is subject to internal and external bodily damage.

NOTE | **All PPEs (Security Equipment) must have an authenticity certificate.**

▪ Warnings

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

⚠ When servicing the machine, wear PPE.

⚠ Do not wear loose clothing, as they may become entangled in the seeder.

⚠ When starting the tractor engine, be properly seated in the operator's seat and aware of the full knowledge of the correct and safe handling of both the tractor and the seeder. Always put the shift lever in the neutral position, disconnect the control gear from the PTO and put the hydraulic controls in the neutral position.

⚠ Do not start the tractor engine indoors without adequate ventilation as exhaust fumes are harmful to health.

⚠ When maneuvering the tractor to engage the seeder, make sure you have the necessary space and that there is no one very close, always do the maneuvers at idle and be prepared to brake in an emergency.

⚠ Do not make adjustments with the seeder in operation.

⚠ When working on slopes, be careful to always maintain the required stability. In the event of imbalance, reduce acceleration, turn the wheels to the side of the slope and never raise the seeder.

⚠ Always drive the tractor at safety compatible speeds, especially when working on rough or sloping terrain, always keep the tractor hitched.

⚠ When driving the tractor on roads, keep the brake pedals interconnected.

⚠ Do not work with the tractor with a light rear end. If the rear tends to lift, add more weights to the rear wheels.

⚠ When leaving the tractor, shift to neutral and set the parking brake.

⚠ Any and all maintenance on the seeder must be done with the seed stopped and the tractor turned off.

⚠ All refueling or inspection must be done with the seeder stopped and the tractor turned off, using the means of safe access.

⚠ Do not drive on highways, especially at night. Use warning signs all along the way.

⚠ If it is necessary to travel with the seeder on highways, consult the traffic authorities.

⚠ Do not allow people who have not been trained to use the seeder, that is, who do not know how to operate it correctly.

⚠ Do not transport or work with the seeder close to obstacles, rivers or streams.

▪ Warnings

⚠ It is forbidden to transport people on self-propelled machines and implements.

⚠ Changes to the original characteristics of the seeder are not authorized, as they may alter safety, operation and affect the useful life.

⚠ Read carefully all the safety information in this manual and on the seeder.

⚠ Only operate the seeder if all guards are installed and correctly.

⚠ Do not under any circumstances remove the seeder protection components.

⚠ Always check that the seeder is in perfect condition. In the event of any irregularity that may interfere with the seeder's operation, provide proper maintenance before any work or transport.

⚠ Maintenance and especially inspection in risk areas of the seeder, must be carried out only by a trained or qualified worker, observing all safety guidelines. Before starting maintenance, disconnect all drive systems from the seeder.

⚠ Periodically check all components of the seeder before using it.

⚠ According to the equipment used and the working conditions in the country or in areas of maintenance, precautions are necessary. Baldan has no direct control over precautions, so it is the responsibility of the owner to put the safety procedures into practice while working with the seeder.

⚠ Check the minimum tractor power recommended for each seeder model. Only use tractors with power and ballast compatible with the load and terrain topography.

⚠ During the transport of the seeder, travel at speeds compatible with the terrain and never exceeding 10 km/h, this reduces maintenance and consequently increases the life of the seeder.

⚠ Alcoholic beverages or some medications may cause loss of reflexes and change the operator's physical condition. Therefore, never operate this seeder under the use of these substances.

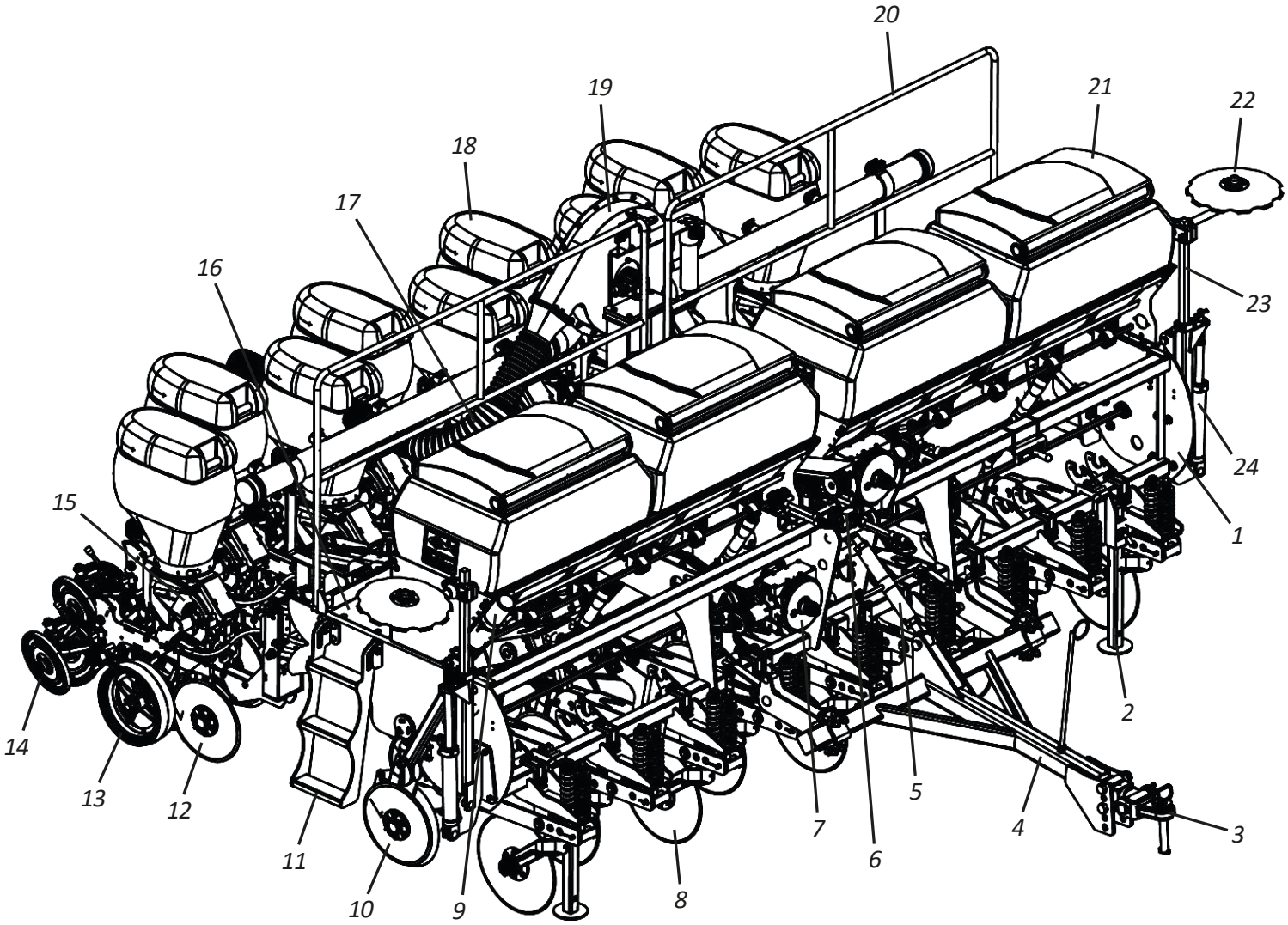
⚠ Read or explain all procedures in this manual to a user who cannot read.

If in doubt, contact After Sales.
Telephone: 0800-152577 / Email: posvenda@baldan.com.br

▪ Components

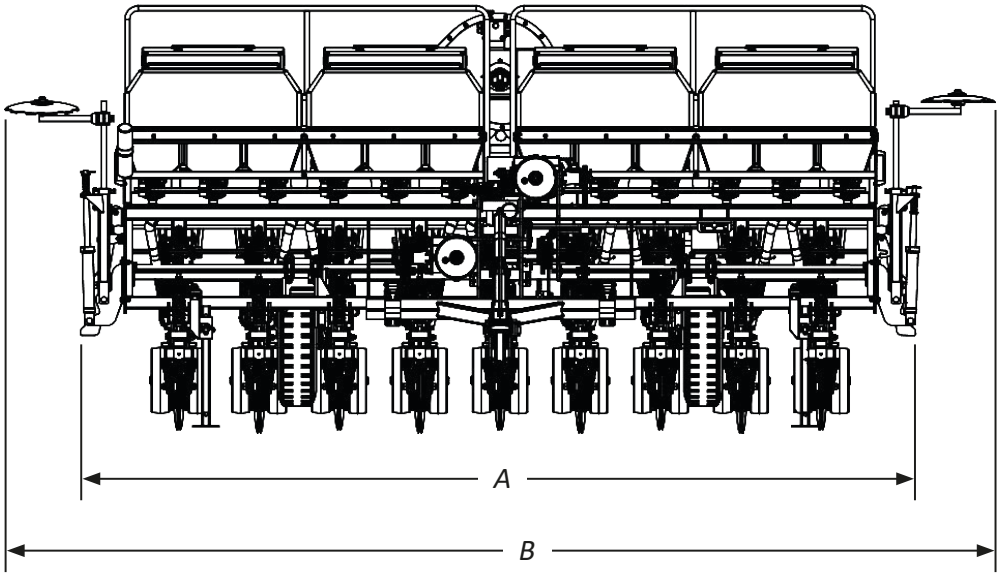
• SPE TOP LINE FLEX AIR - Precision Row Crop Planter

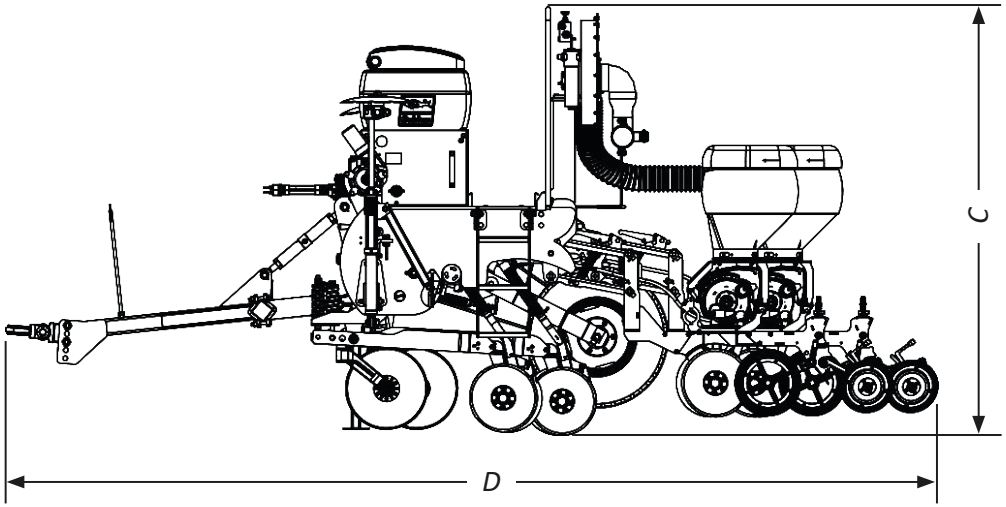
1. Chassi
2. Support bracket
3. Shackle
4. Hitch header
5. Three-Point Regulator
6. Valve
7. Speed Box
8. Cutting disc
9. Manual container
10. Fertilizer double disc
11. Ladder
12. Double seed disc
13. Depth limiting wheel
14. "V" Wheel
15. Selenium / Vset dispenser
16. Platform
17. Air conductive hose
18. Seed tank
19. Turbine
20. Platform handrail
21. Fertilizer tank
22. Marker Disc
23. Line marker
24. Marker cylinder

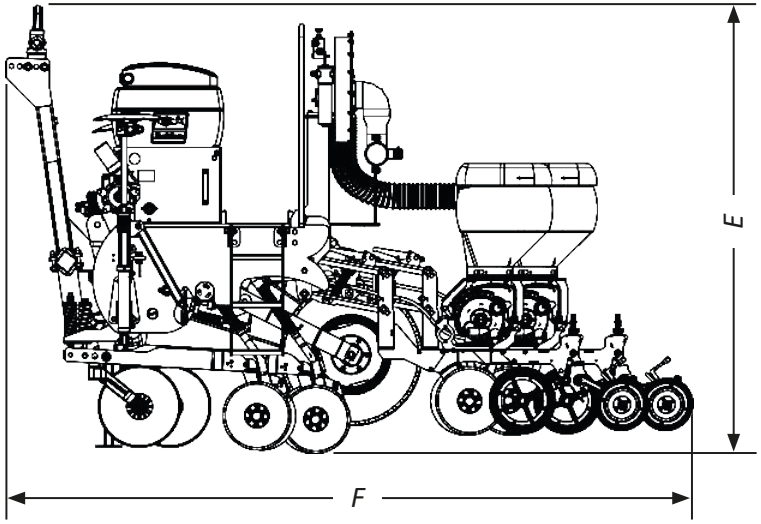


▪ Dimensions

• SPE TOP LINE FLEX AIR - Precision Row Crop Planter







Model	Nr of lines	Measurement A (mm)	Measurement B (mm)	Measurement C (mm)	Measurement D (mm)	Measurement E (mm)	Measurement F (mm)
SPE TOP LINE FLEX AIR 4000	7	3805	4567	2395	5215	2501	3778
SPE TOP LINE FLEX AIR 4500	9	4705	5467	2395	5215	2501	3778

▪ Specifications

• SPE TOP LINE FLEX AIR - Precision Row Crop Planter

Model	Nr of lines	Useful Width (mm)	Working Width (mm)	Total Width (mm)	Fertilizer Hopper Capacity (L)	Seed Hopper Capacity (L)	Spacing between lines (mm)	Number of wheels	Approximate weight(Kg)	Approximate Power (Hp)
SPE TOP LINE FLEX AIR 4000	7	3000	2905/3150	3550	900	45	450	2	3100	85*
SPE TOP LINE FLEX AIR 4500	9	4000	4050/4500	4450	1200	45	450	2	3700	110*

Wheelset ..... 700 x 16 x 10LS BL

(*) Approximate power (hp) depends on the normal conditions for planting and may vary according to the type of soil, topography, etc.

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 products manufactured. Technical specifications are estimates and reported under normal working conditions.

INTENDED USE OF SPE TOP LINE FLEX AIR

The **SPE TOP LINE FLEX AIR** was developed for precision seeding of summer crops.
The **SPE TOP LINE FLEX AIR** must only be driven and operated by a duly instructed operator.

UNAUTHORIZED USE OF SPE TOP LINE FLEX AIR

To avoid damage, serious injury or death, DO NOT carry people on any part of the **SPE TOP LINE FLEX AIR.**
The **SPE TOP LINE FLEX AIR** may NOT be used to attach, tow, or push other attachments or accessories.
The **SPE TOP LINE FLEX AIR** must NOT be used by an inexperienced operator who does not know all driving, command and operation techniques.

▪ Assembly

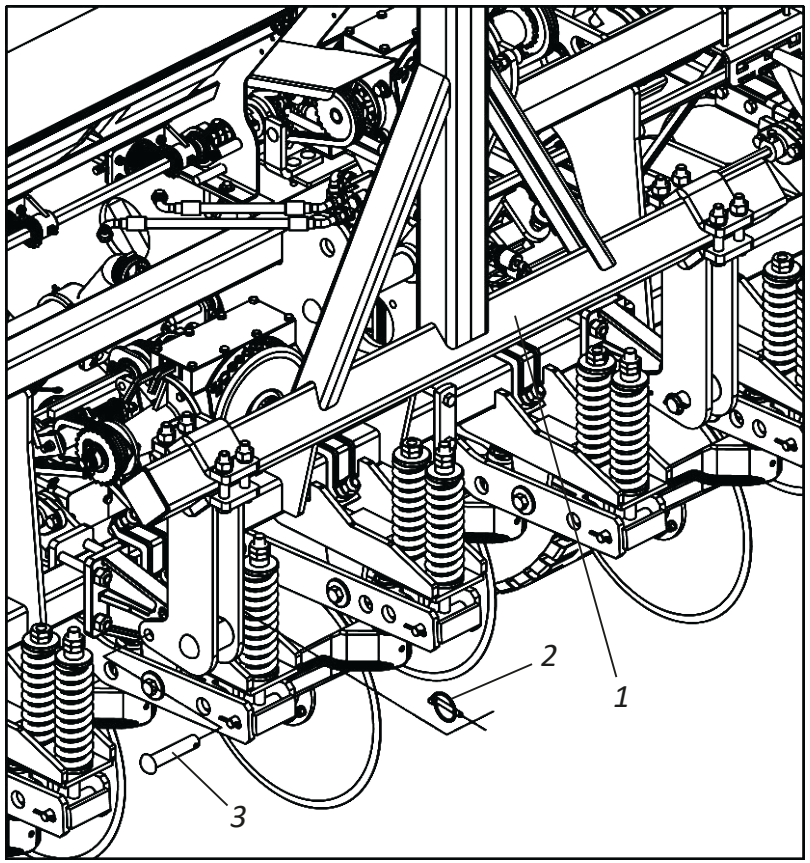
The **SPE TOP LINE FLEX AIR** leaves the factory semi-assembled, without the assembly of some components that must be assembled according to the instructions below.

▪ Assembly

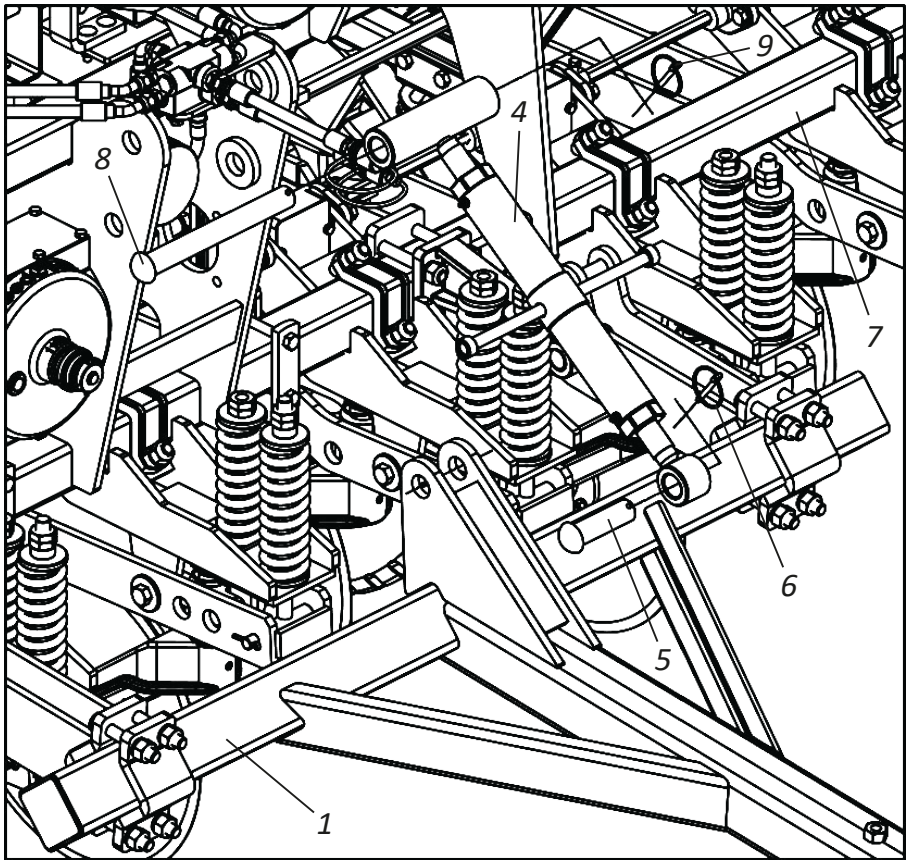
• Assembly of the hitch header

To mount the hitch header (1) on the **SPE TOP LINE FLEX AIR**, proceed as follows:

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



02 - Then, insert the regulator (4) into the hitch header (1), fastening it with the pin (5) and ring lock (6) and into the upright support (7) with the pin (8) and ring lock (9).

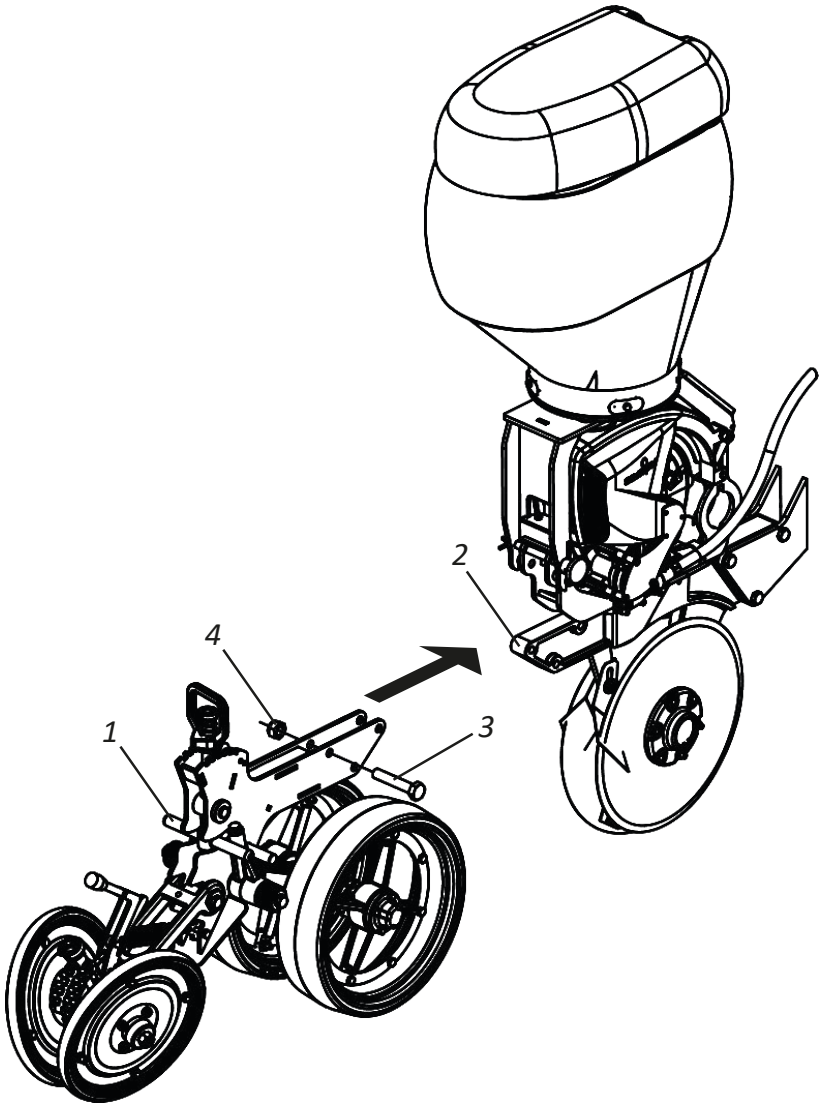


▪ Assembly

• Assembly of the oscillating trolley on the line

To assemble the oscillating affection on the line, proceed as follows:

01 - Attach the oscillating carriage (1) to the line, securing it using screws (3) and nuts (4).

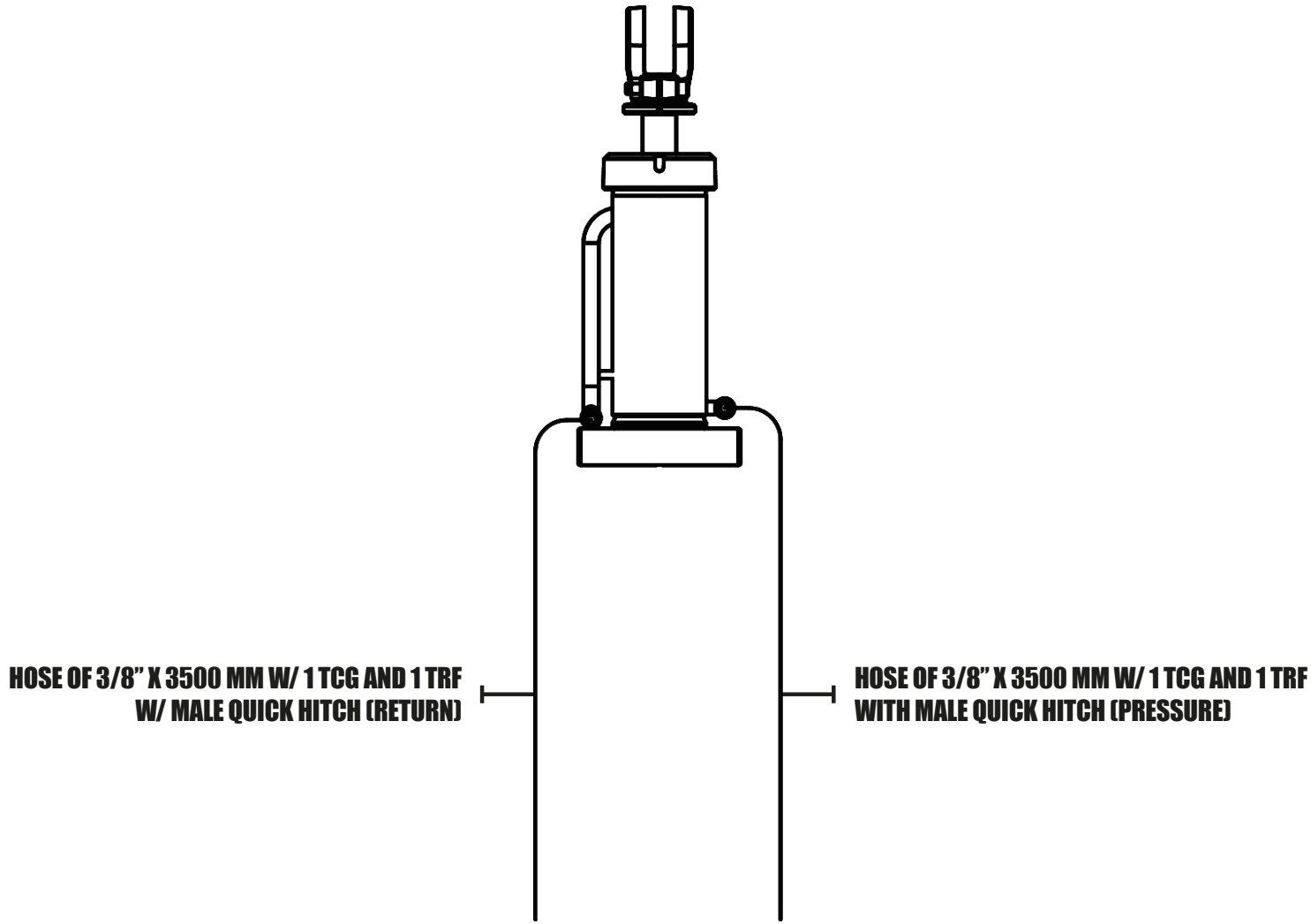


⚠ ATTENTION

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 deposits. Retighten all screws and nuts, check all pins, cotter pins, locks, and hoses.

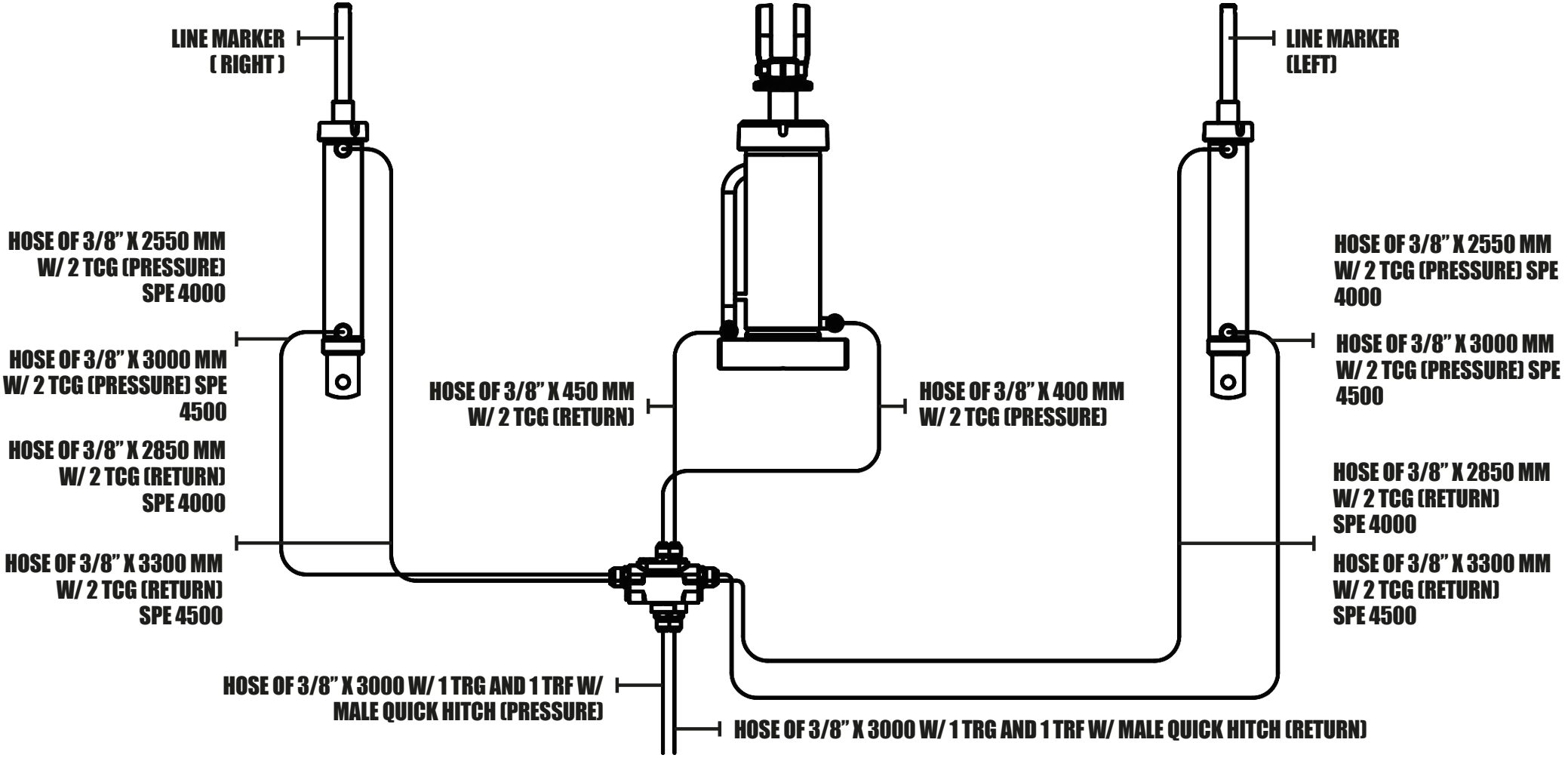
Assembly

- Assembly of the hydraulic system without line marker



▪ Assembly

• Assembly of the hydraulic system with line marker



NOTE: THE EXPRESSIONS "RIGHT" AND "LEFT" ARE WHEN LOOKING AT THE SEEDER FROM BEHIND.

▪ Assembly

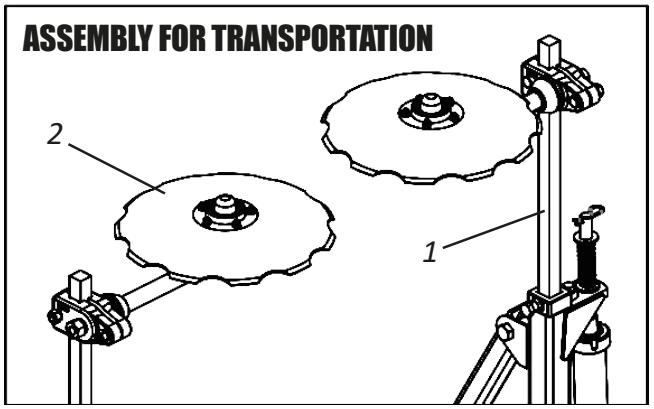
• Assembly of the line marker cutting disc

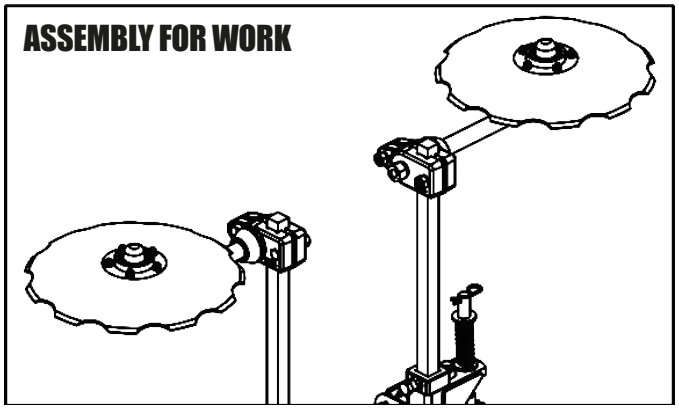
The seeders leave the factory with the line markers (1) fitted. The discs (2) are mounted inversely to their respective markers to avoid the risk of accidents in the transport of the seeder.

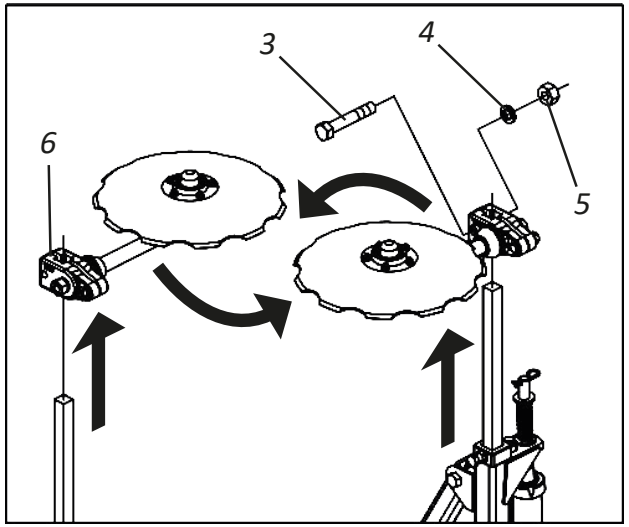
Before starting to work with the seeder, change the discs (2) in the row markers (1), to do this, proceed as follows:

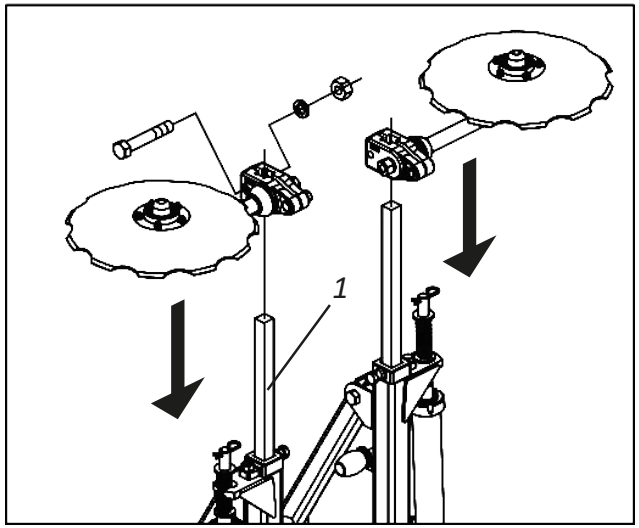
01 - Loosen the screws (3), pressure washer (4) and nuts (5).

02 - Then remove the disk holders (6), rotate them180° 180°, and remount them on the line markers (1), fastening them with the screws (3), lock washers (4) and nuts (5).









⚠ ATTENTION

SPE TOP LINE FLEX AIR discs are sharp and can cause accidents. When reversing the position of the line marker discs, use PPE equipment (Safety Equipment) mainly gloves on your hands.

▪ Hitch

• Tractor hitch

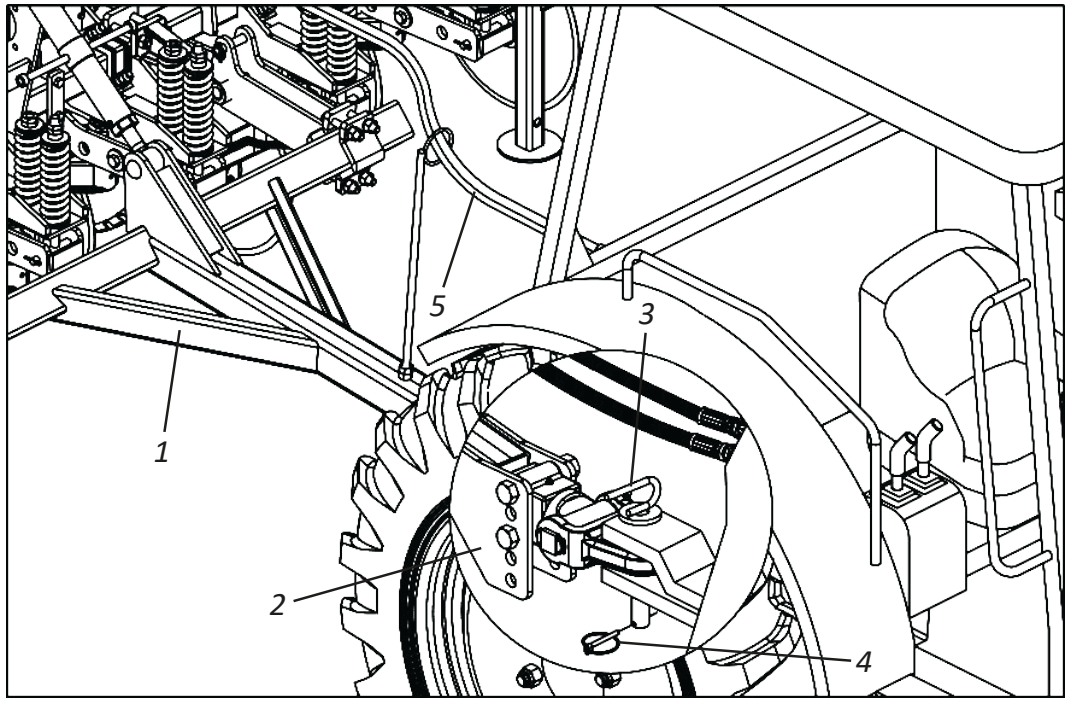
Before attaching the **SPE TOP LINE FLEX AIR** to the tractor, check that the tractor is equipped with a set of weights or ballasts at the front or at the front wheels to do not lift the tractor. The rear wheels will give the tractor greater stability and traction on the ground.

To attach the **SPE TOP LINE FLEX AIR**, proceed as follows:

01 - Level the hitch header (1) of the seeder in relation to the tractor coupling through the adjustments (2) of the coupling shac kle . Then, slowly approach theseeder to the tractor in reverse, paying attention to the application of the brakes.

02 - Proceed the coupling of the seeder to the tractor, fastening it with the coupling pin (3) and lock (4).

03 - Finish by coupling the hoses (5) to the tractor's quick coupling.



⚠ ATTENTION

Before connecting or disconnecting the hydraulic hoses, turn off the engine and relieve the pressure in the hydraulic system by operating the control levers fully. When relieving system pressure, make sure no one is near the equipment moving area.

NOTE

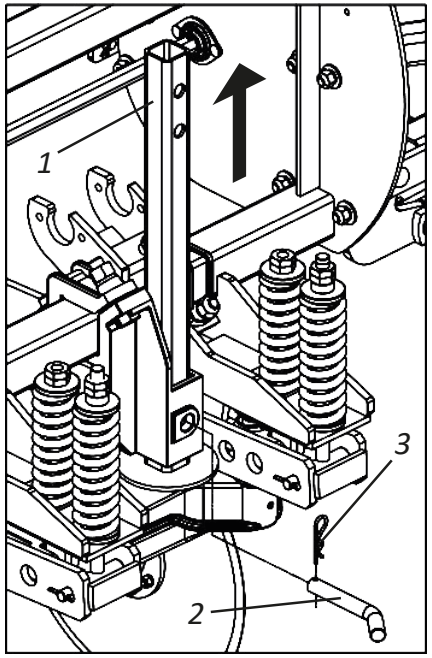
When engaging the seeder, look for a safe and easily accessible place, always use reduced gear with low acceleration.

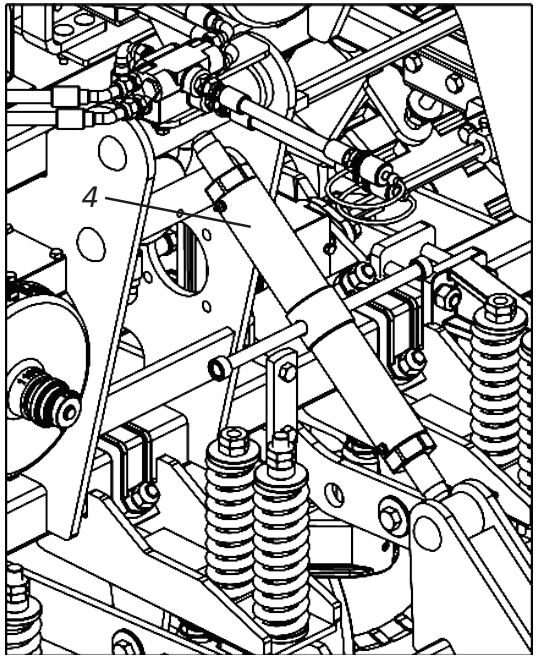
▪ Transportation

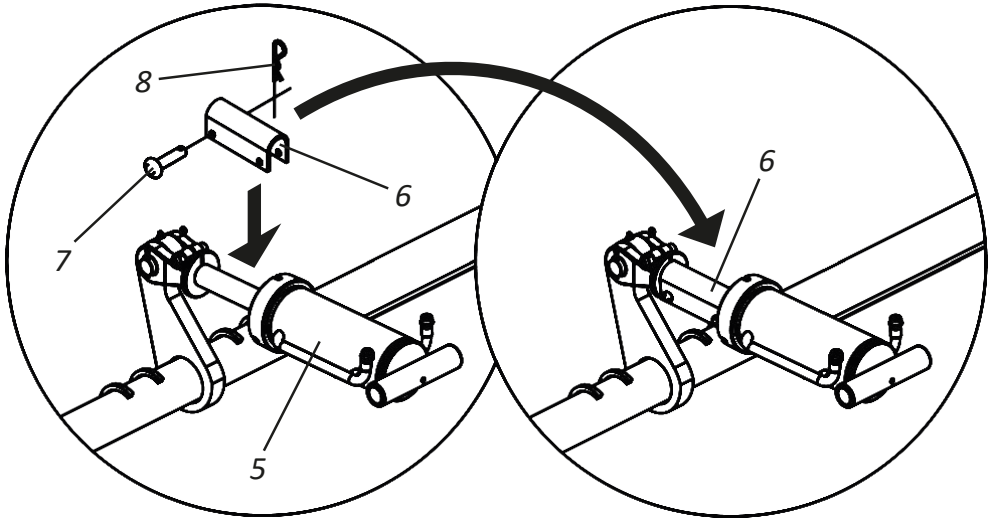
• Preparing for transport

Before transporting the seeder, proceed as follows:

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







02 - With the seeder lowered down, level it through the regulator (4) of the hitch header.

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

⚠ ATTENTION

Do not transport the seeder without first checking all the procedures mentioned here. Do not transport the seeder with the ladder open, follow the guidelines on page 29.

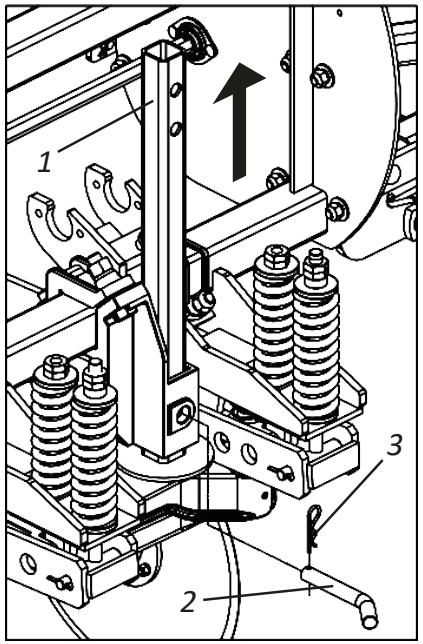
❗ IMPORTANT | **Do not transport the loaded seeder as it may damage the equipment. We recommend that you supply it only at the workplace. If the seeder is to remain in the field for any reason, we recommend covering it with a waterproof tarpaulin to avoid humidity.**

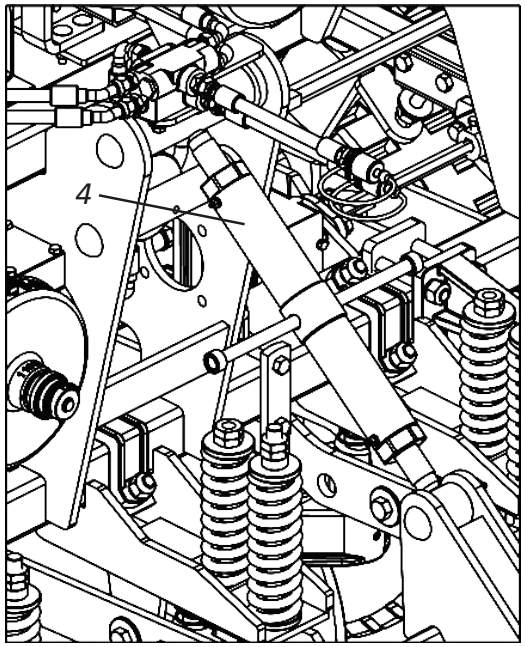
▪ Work

• Preparation for work

Before working with the seeder, proceed as follows:

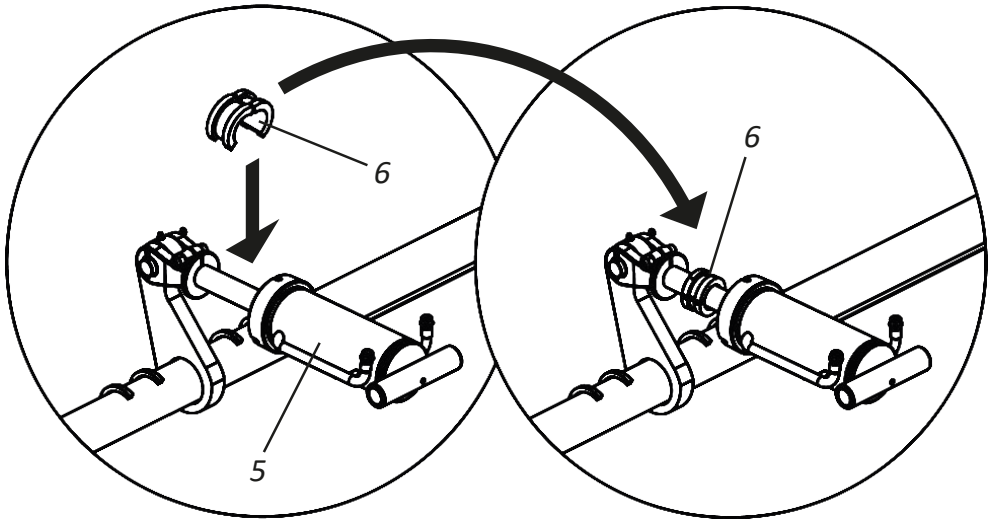
01 - Collect the support bracket (1) and secure with the pin (2) and lock (3).





02 - With the seeder lowered down, level it through the regulator (4) of the hitch header.

03 - Then, lifting the lines by fully actuating the stroke of the hydraulic cylinder (5), place the stop rings (6) on the cylinder rod.



⚠ ATTENTION

Do not work with the seeder without first checking all the procedures mentioned. Do not work with the seeder with the ladder open, follow the guidelines on the next page.

NOTE

Always place the same number of limit rings (6) on all hydraulic cylinders (5) for lifting the wheels.

IMPORTANT

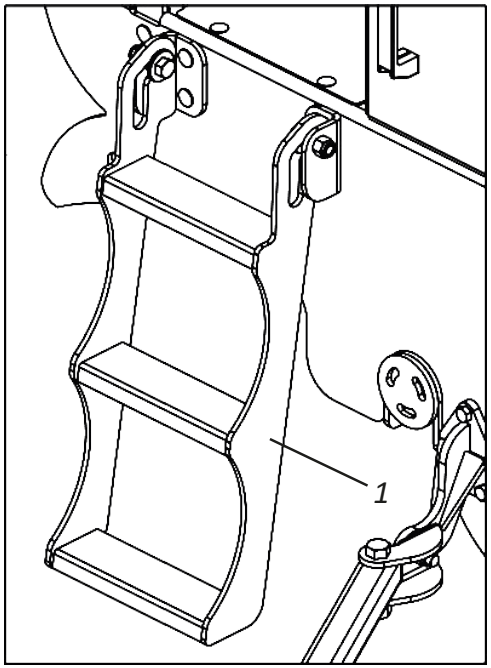
After coupling the limiting rings (6), the seeding machine will always operate at the same depth, whether in hard or loose soil, because the limiting rings (6) are limiting the stroke of the hydraulic cylinders (5), in other words, preventing the oscillation of the wheels.We recommend fueling it only at the work site. If the seeder is to remain in the field for any reason, we recommendcovering it with a waterprooftarpaulinto avoid humidity.

▪ Work

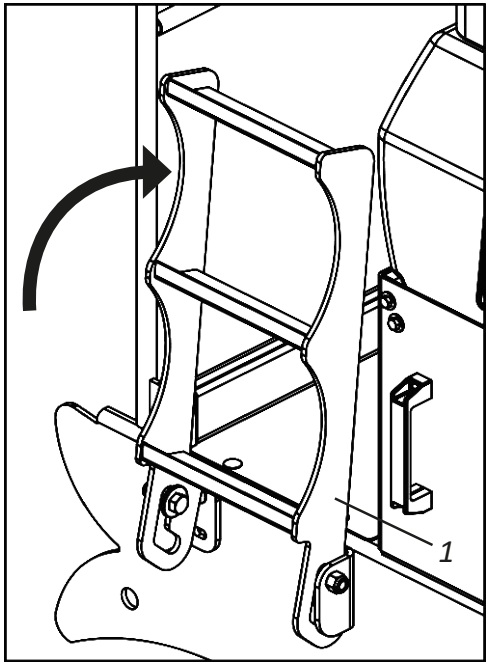
• Use of the ladder

The folding ladder (1) must only be used when filling or servicing the **SPE TOP LINE FLEX AIR** tanks. Before using the articulated ladder (1), make sure that the seeder is stopped and the tractor is switched off.

OPEN POSITION:
FOR MAINTENANCE OR SUPPLY OF THE DEPOSIT



CLOSED POSITION:
FOR WORK OR TRANSPORT



⚠ ATTENTION

Do not stand on the ladder when the drill is working or being transported.

Do not work or transport the seeder with the ladder open.

Do not carry people on the platform, ladder or any other part of the drill. Ignoring these warnings can result in serious accidents or even death.

❗ NOTE

The articulated ladder (1) should only be used when filling or maintaining tanks.
The articulated ladder (1) complies with NBR standards.

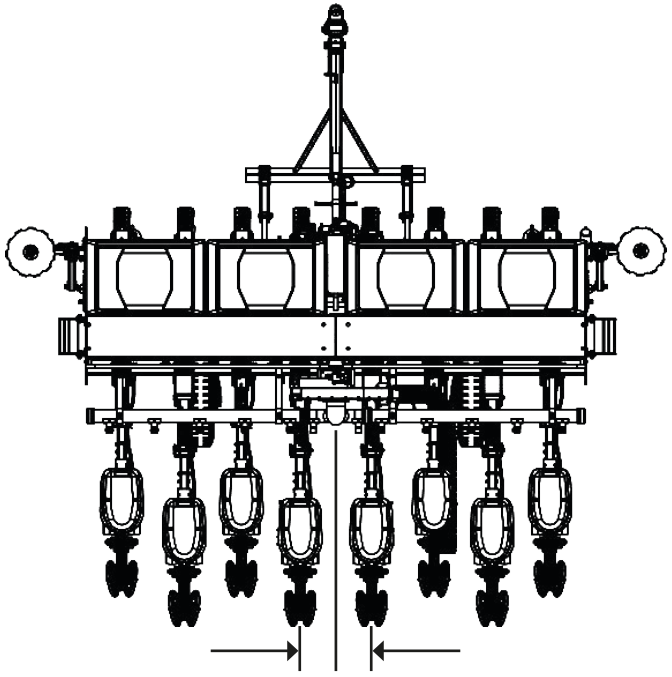
▪ Spacing

• Line spacing

The **SPE TOP LINE FLEX AIR** seeders are provided with spacing according to the number of rows requested, and new spacings can be made depending on the type of crop desired.

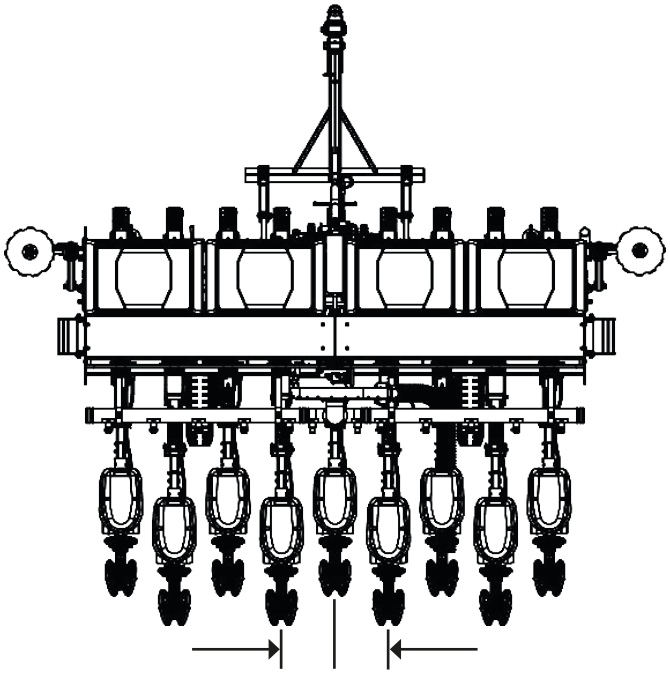
• Number of even lines

Mark the center of the **SPE TOP LINE FLEX AIR** chassis and divide 1/2 (half) spacing to the left and 1/2 (middle) to the right, fixing the first two lines at these points. Then, starting from these, make the assembly of the other lines with the desired spacing.



• Number of odd lines

Fix a line in the center of the **SPE TOP LINE FLEX AIR** chassis and starting from this, assemble the others with lines with the desired spacing.



ON THE FOLLOWING PAGE, CHECK THE POSSIBLE SPACES, OBSERVING THE ABOVE ASSEMBLY INSTRUCTIONS TO ASSEMBLE THE QUANTITY OF UNIQUE OR UNIQUE LINES.

▪ Spacing

• Spacing tables in millimeters

Model	Lines	Spacing (mm)
4000	7	450 / 500
	6	500 / 550 / 600
	5	550 / 600 / 650 /700 / 750
	4	700 / 750 / 800 / 850 / 900 / 950 / 1000

Model	Lines	Spacing (mm)
4500	9	450 / 500
	8	450 / 550
	7	550 / 600 / 650
	6	700 / 750 / 800
	5	850 / 900 / 950 / 1000
	4	900 / 950 / 1000

▪ Adjustments

• Line markers adjustment

The adjustment of the line markers is important to obtain evenly spaced planting, making so that the edge line of the seeder is at the same spacing as the last planted line, facilitating future operations. To adjust the line markers, proceed as follows:

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

EXEMPLE: For a planting with 9 rows in the seeder, spacing of 0.45 mts and the front gauge of the tractor with 1.43 mts, determine:

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

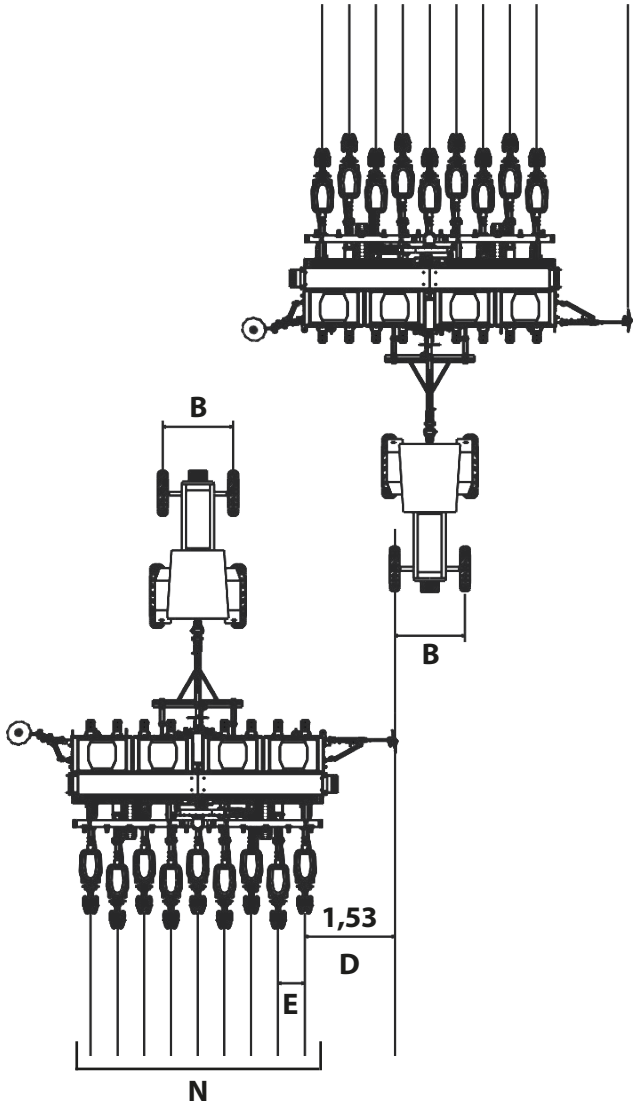
Resolve: $X = \frac{0{,}45 \times 10 - 1{,}43}{2}$

D = 1,53 meters

WHER:
E = Line spacing (mts)
N = Number of seeder rows
B = Front gauge of tractor
D = Marker distance

02 - Set the 1.53 m line marker disc to the center of the first planting line.

03 - Line markers are alternating, one lowers after the other, so if during planting before the end of the line there is the need to stop work, engage the piston so that the sower goes up and down twice to continue working with the marker on the right side.



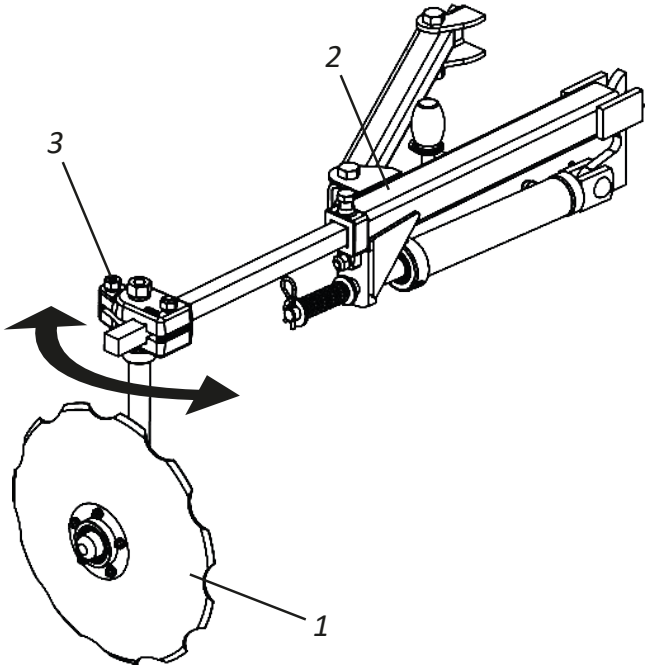
⚠ ATTENTION **Avoid accidents caused by the intermittent action of line markers. When activating the seeder, check that there are no people under the line markers or in their area of action.**

▪ Adjustments

• Adjustment of the line markers discs

The discs (1) of the line markers (2) have angular adjustment to facilitate the demarcation work on the ground.To adjust the discs (1) of the line markers (2), proceed as follows:

01 - Loosen the nut (3), turn the disk (1) to the desired position.
02 - Then retighten the nut (3) securing the disk (1) in the desired position.

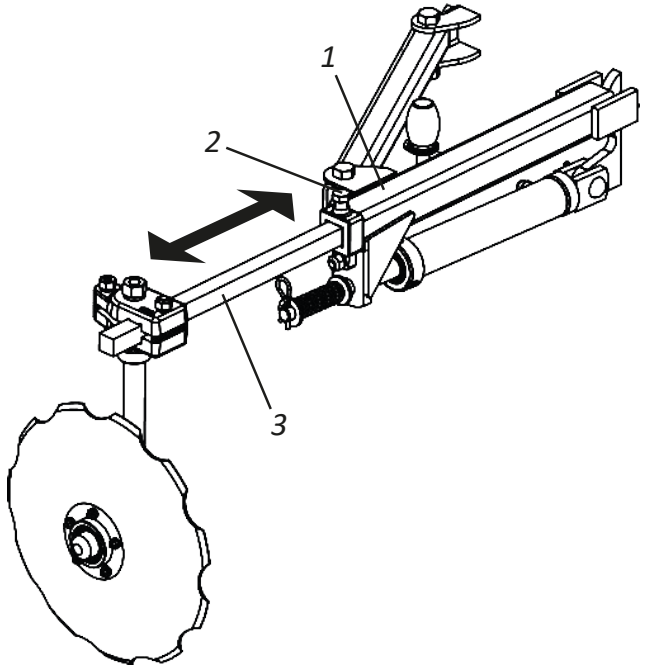


⚠ ATTENTION | **Before making any adjustments to the line marker, make sure it is on the ground, the seeder is stopped and the tractor is off.**

• Adjustment to the line markers bar

The line markers (1) have distance regulation to be adjusted according to the number of lines, spacing, and the tractor's gauge.To adjust the distance of the line markers (1), proceed as follows:

01 - Loosen the screw (2), move the bar (3) to the desired position.
02 - Then retighten the screw (2) fixing the bar (3) in the desired position.



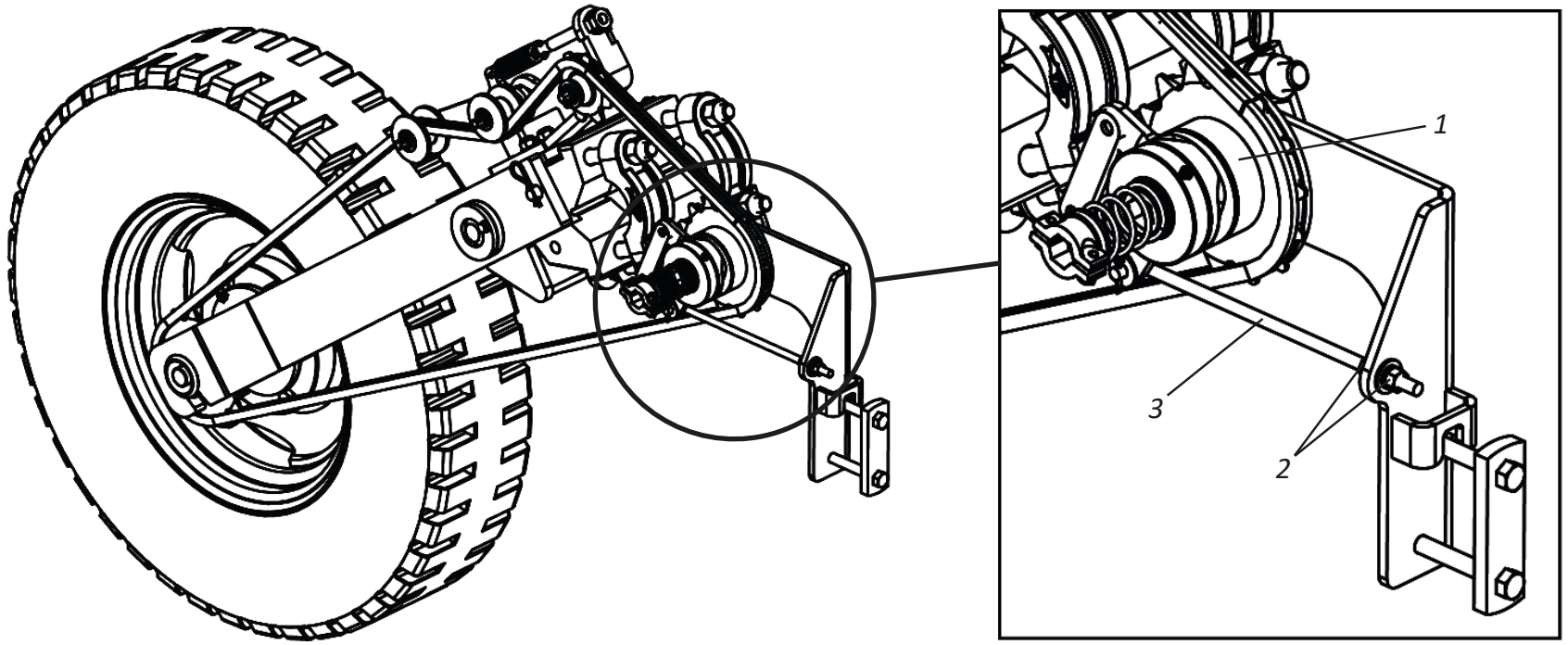
❗ IMPORTANT | **To know the distance to be set on the line marker, make the calculation as instructed on the previous page.**

▪ Adjustments

• Adjustmentd of the ratchet

When placing the shims on the hydraulic cylinder to limit the depth of the discs according to the instructions on page 28, then adjust the ratchet (1) according to the need for work, thus ensuring the activation of the transmission system. To adjust the ratchet (1), proceed as follows:

01 **-** Loosen the nuts and lock nuts (2), adjust the rod (3) for the correct activation of the ratchet tripping system (1).
02 **-** Then, retighten the nuts and against nuts (2).



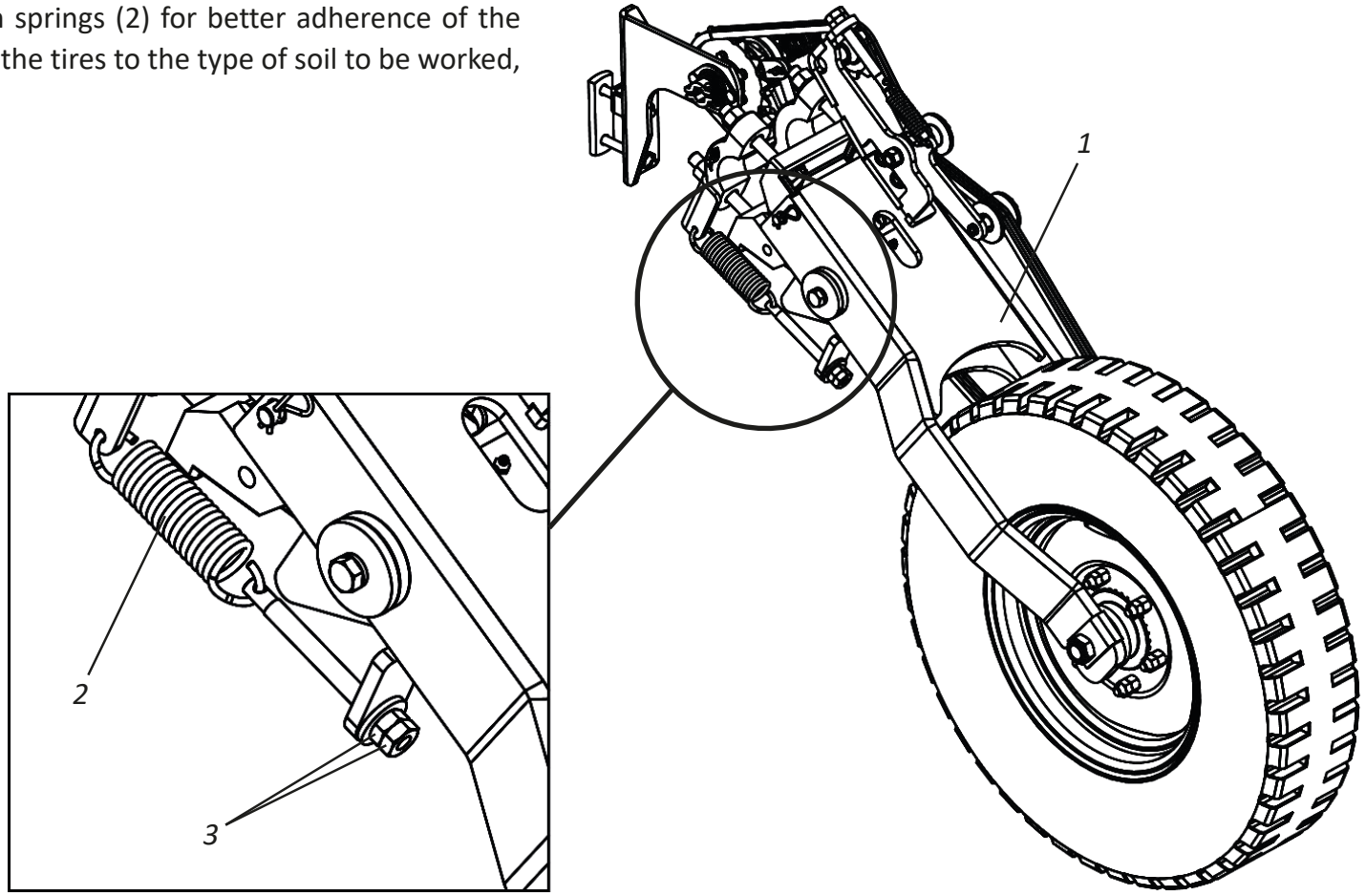
⚠ ATTENTION | **Failure to observe this regulation may cause the ratchet to disarm.**

❗ IMPORTANT | **When adjusting the ratchet, repeat the procedure on the other ratchet.**

▪ Adjustments

• Adjustment of the traction spring

The wheel sets (1) are provided with traction springs (2) for better adherence of the tires to the ground. If necessary, adjust the grip of the tires to the type of soil to be worked, using the nuts (3).



⚠ ATTENTION | **The grip of the tires on the ground must be observed in the workplace, analyzing the type of soil to be worked on.**

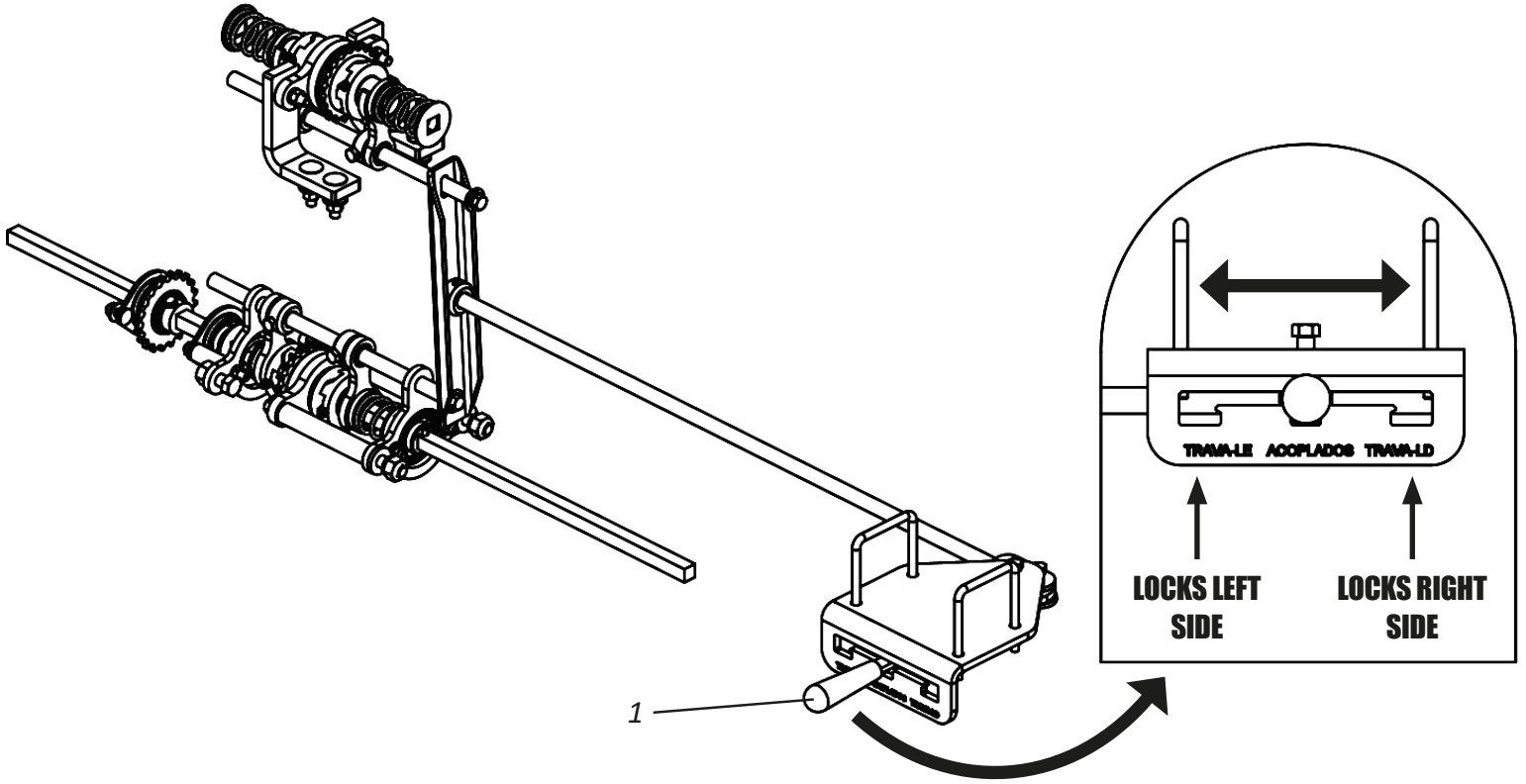
❗ IMPORTANT | **All wheel sets on the seeder must have the same adjustment.**

▪ Adjustments

• Trimming system

The **SPE TOP LINE FLEX AIR** comes from the factory with a topping system that allows planting with only one side of the seeding machine, that is, half of the seeds lines. To activate the arm, proceed as follows:

01 - Choose the side of the sowing machine to be trimmed.
02 - Then, with the tractor and the seeding machine stopped, pull the lever (1) to the right or left side, activating the interlocking system.
03 - Then, lock the lever (1) to start working.



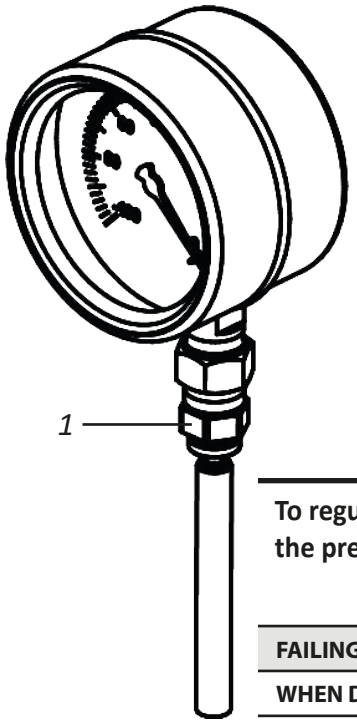
⚠ ATTENTION

Do not operate the trimming system with the tractor and the seeder in motion. Ignoring this warning could result in serious accidents or death.

▪ Adjustments

• Vacuum Meter

The **SPE TOP LINE FLEX AIR** has a vacuum gauge (1), used to measure the vacuum pressure in the lines. To check the generated vacuum pressure, proceed according to the instructions on pages 74 and 75.



⚠ ATTENTION

To regulate seed distribution, initially set the pressure to 50 mlbar (millibar).

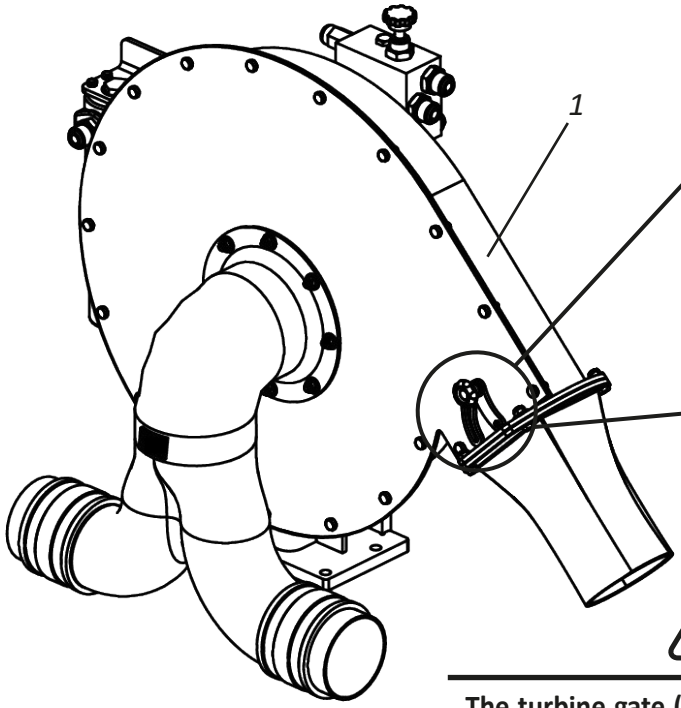
FAILING:	INCREASE THE PRESSURE.
WHEN DOUBLE:	REDUCE PRESSURE

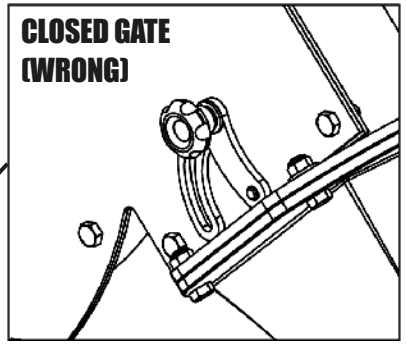
❗ IMPORTANT | **The vacuum is indicated in mbar (millibar) by the vacuum gauge (1).**

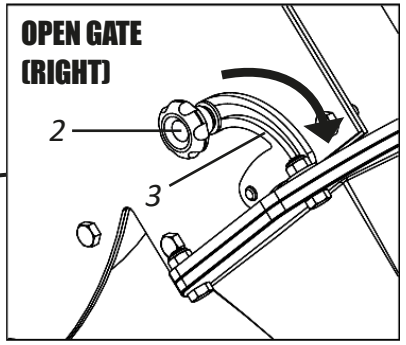
• Turbine

The turbine (1) must generate a negative pressure (vacuum) determined, depending on the specific weight of the seed that will be used. Before starting the work, make sure that the floodgate is fully open, if not, proceed as follows:

01 - Release the knob (2) by turning it counterclockwise.
02 - Then, completely move the plate (3) to open it.
03 - Then, tighten the knob (2) by turning it clockwise.







⚠ ATTENTION

The turbine gate (1) must always be fully open. DO NOT work with the gate closed.

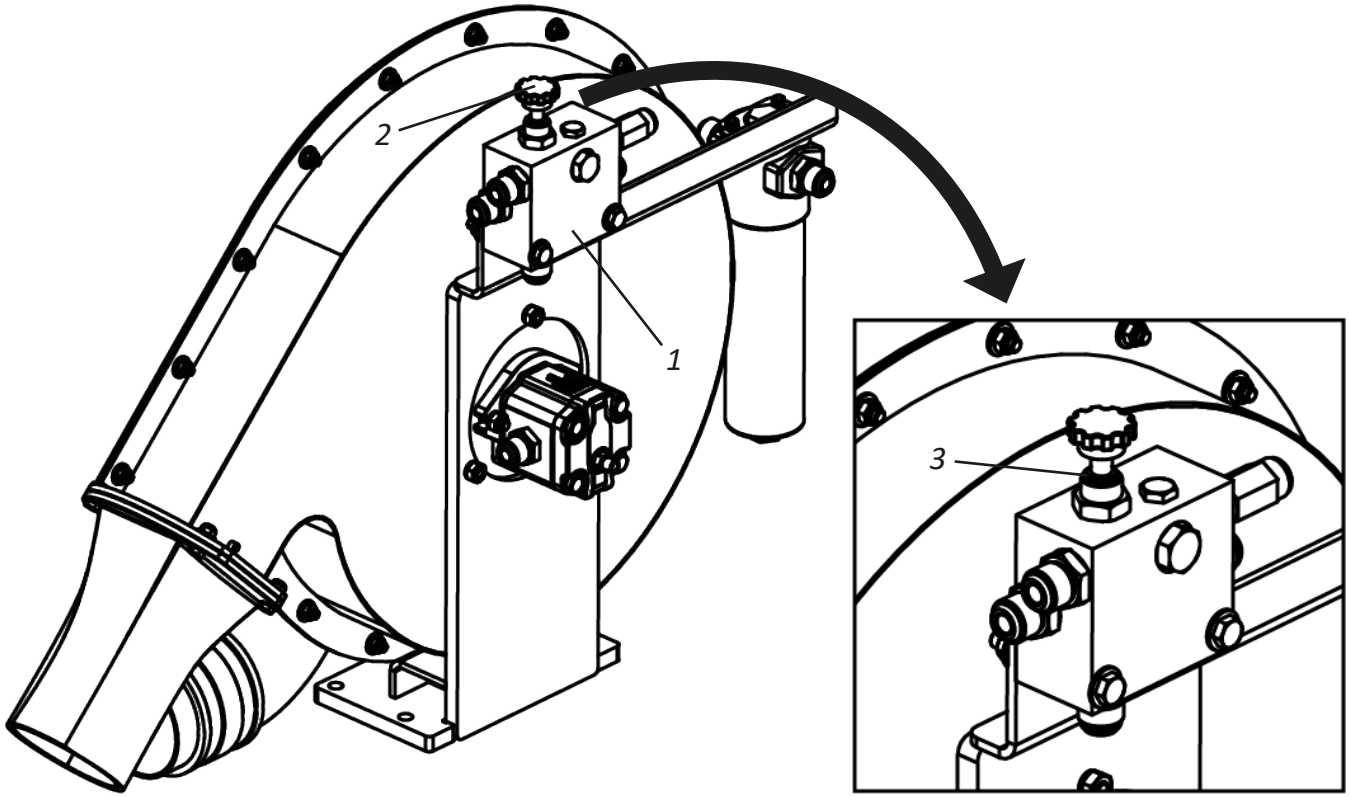
▪ Adjustments

• Adjustment of the continuous flow system

The **SPE TOP LINE FLEX AIR** has a continuous flow system. In this system, when checking the seed drop from the disc when maneuvering the seeder, do the gradually opening the flow regulator valve (1), to do so, proceed as follows:

01 - Turn the knob (2) of the flow regulating valve (1) counterclockwise, until you see that the fact no longer occurs.

02 - At the end of the adjustment, lock the flow regulator valve (1) through the lock nut (3) contained in the knob (2), turning clockwise with an the appropriate tool so that the system does not lose its adjustment eventually.



⚠ ATTENTION

Before starting work, check the flow regulation according to the type of seed used, through the flow valve (1).

▪ Dispenser

• SELENIUM and VSET2 dispensers(Optional)

The **SPE TOP LINE FLEX AIR** can be optionally purchased with the **SELENIUM** or **VSET2** seed dispensers.

SELENIUM

The **SELENIUM** dispenser offers the best seed spacing and easy handling.

VSET2

The **VSET2** dispenser provides regularity in seed distribution, eliminating seed sieving steps.

▪ Dispenser

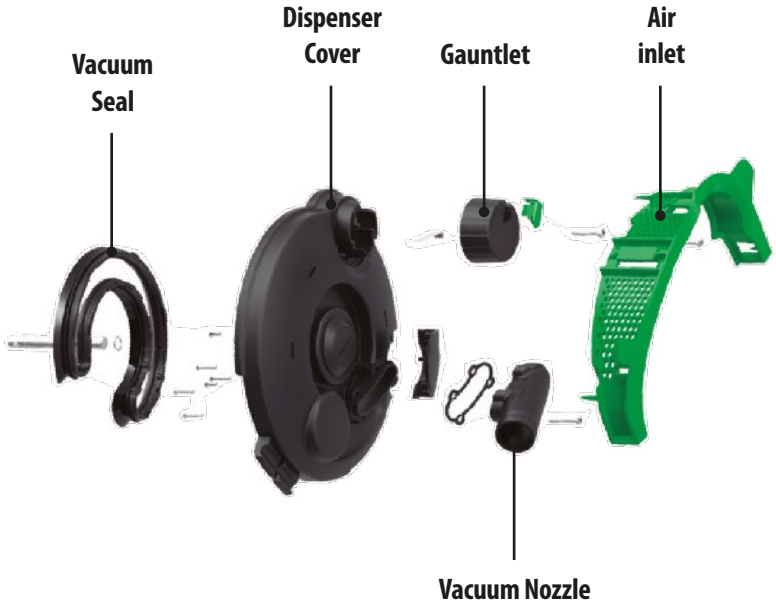
• SELENIUM dispenser (Optional)

• Technical specifications

Pneumatic Dispenser.
No need for adjustments and regulations.
It has a display to monitor the operation in real time.
Dimensions: 414 mm (H) x 206 mm (W) x 373 mm (L).
Weight: 3 Kg.
Vacuum nozzle diameter: 36,5 mm.
Seed nozzle diameter: 74 mm (gravity) or 32 mm (positive pressure).

• Available crops

COTTON | CORN | CARIOCA BEAN | SORGHUM | SOYBEAN

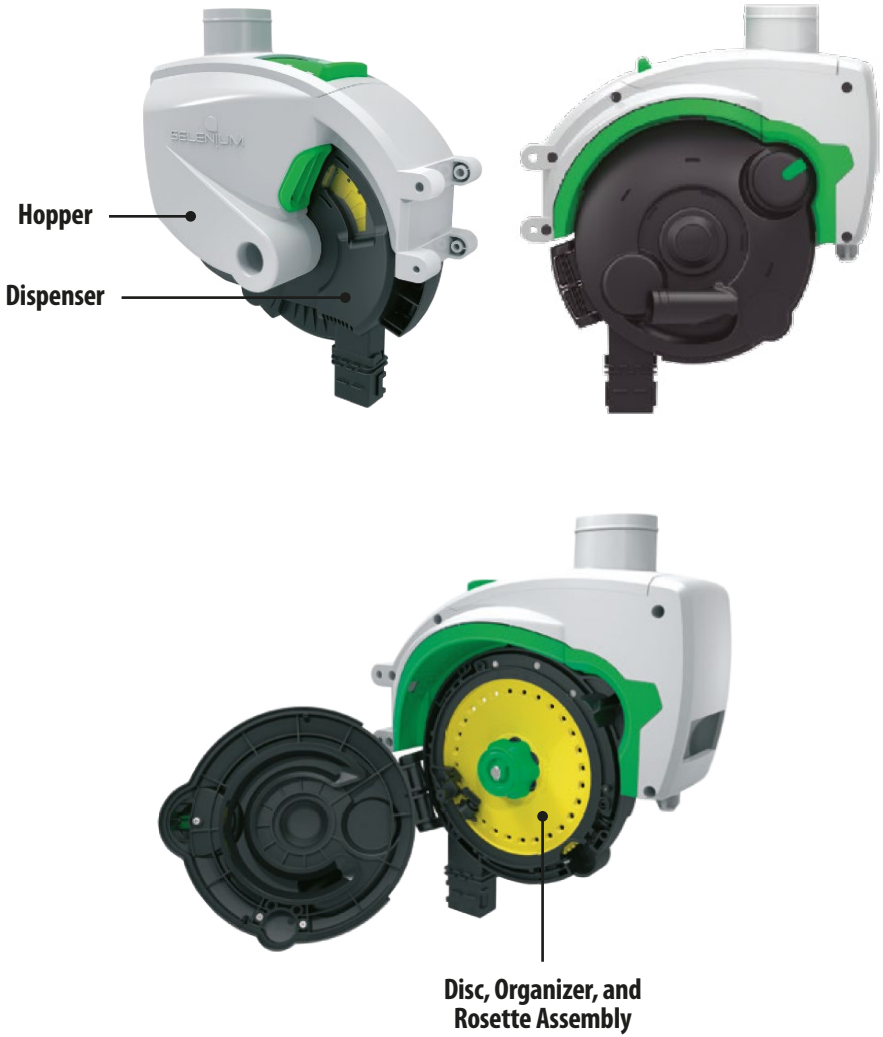


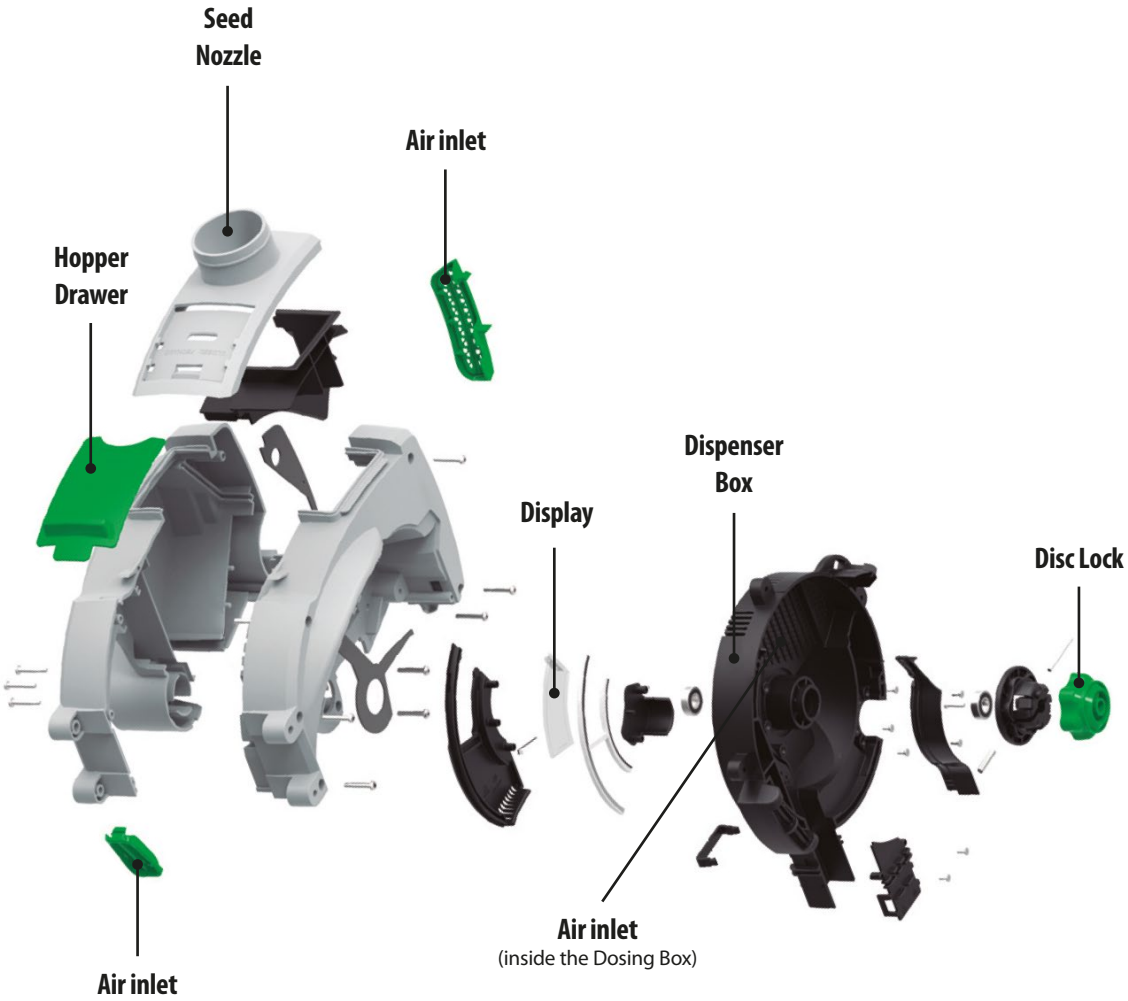
CONDUCTOR

Couple with Selenium it protects and guides the seed to the ground.

▪ Dispenser

• SELENIUM Dispenser Components (Optional)





▪ Dispenser

• Crop choice - SELENIUM dispenser (Optional)

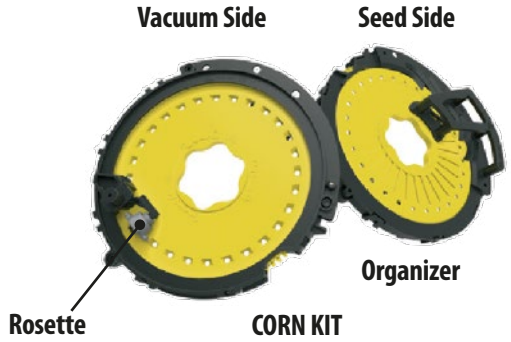
The **SELENIUM** metering unit has **three different sets of discs** with their respective organizer and rosette; for planting **corn**, **flow soybean**, and **soybean**.

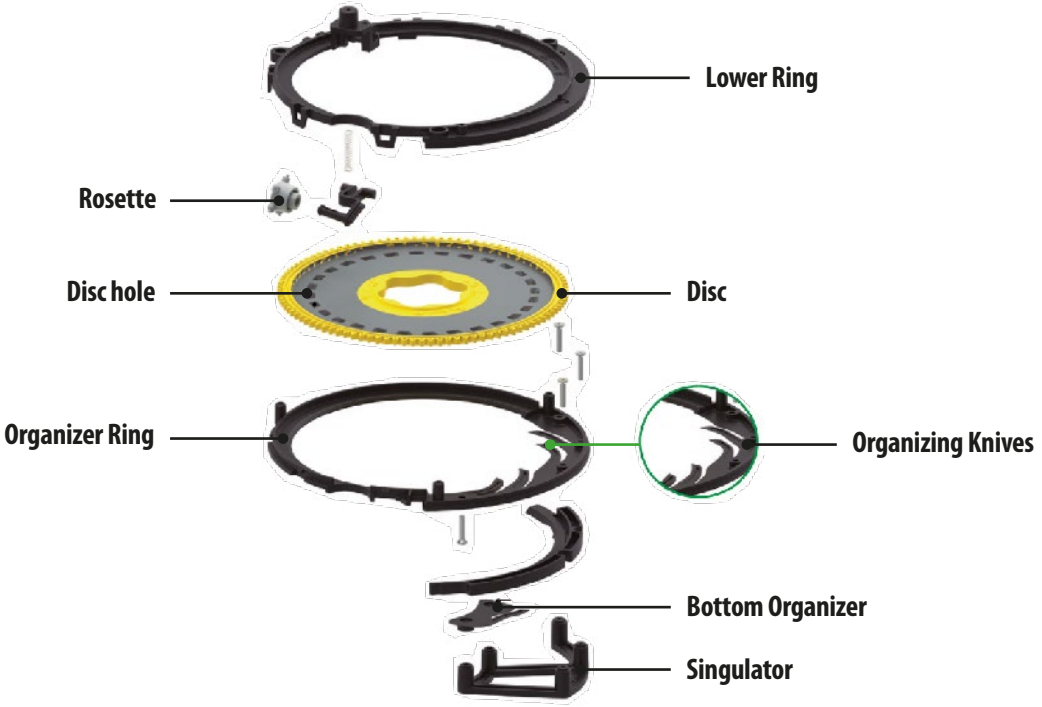
NOTE **The disc set has no adjustment and also must not be disassembled.**

Choose the specific set for the desired crop according to the **disc colors**. The table below relates the color of the disc with the planting crop.

CROPS	CODES	NUMBER OF HOLES	HOLE DIAMETER
CORN	YELLOW	28	4,5 mm
SOJA FLOW	LILAC	40	4,0 mm
SOYBEAN	ORANGE	55	4,0 mm

Description of the 3 (three) kits (consisting of disc, organizer and rosette) and respective crops.



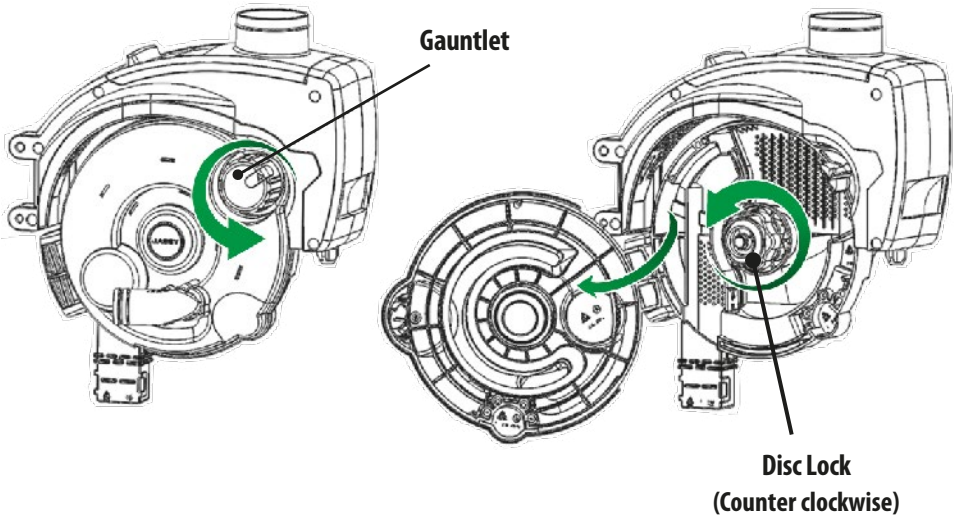


▪ Dispenser

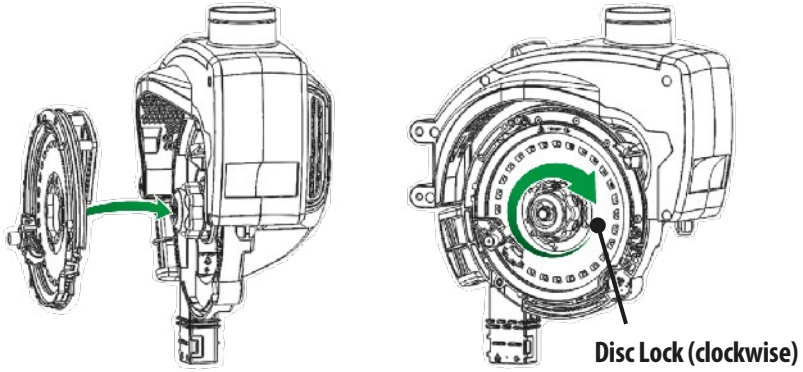
• Disc choice - SELENIUM dispenser (Optional)

For mounting the selected disc set on the dispenser, it is not necessary to remove the **Dispenser of the Hopper**.

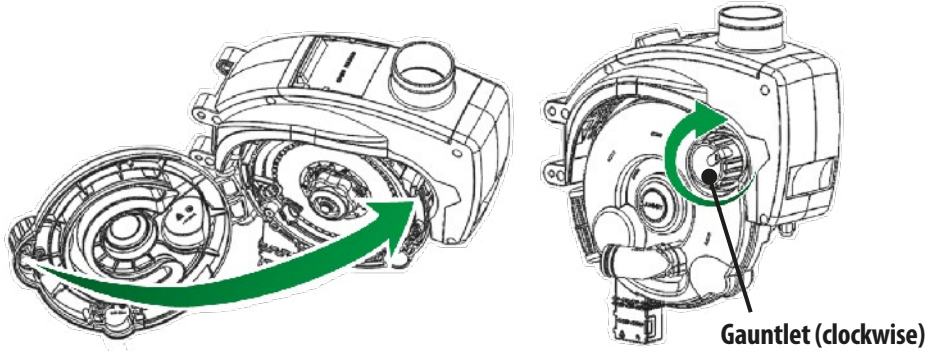
01 **-** Open the dispenser cover by turning the **Handle counterclockwise.**
02 **-** Turn the disc lock **counterclockwise** until the end of its course.



03 **-** Assemble the disc set with the Singulator (Organizers) facing inside the dispenser. After positioning the assembly, **turn the disc lock clockwise** to lock the assembly.



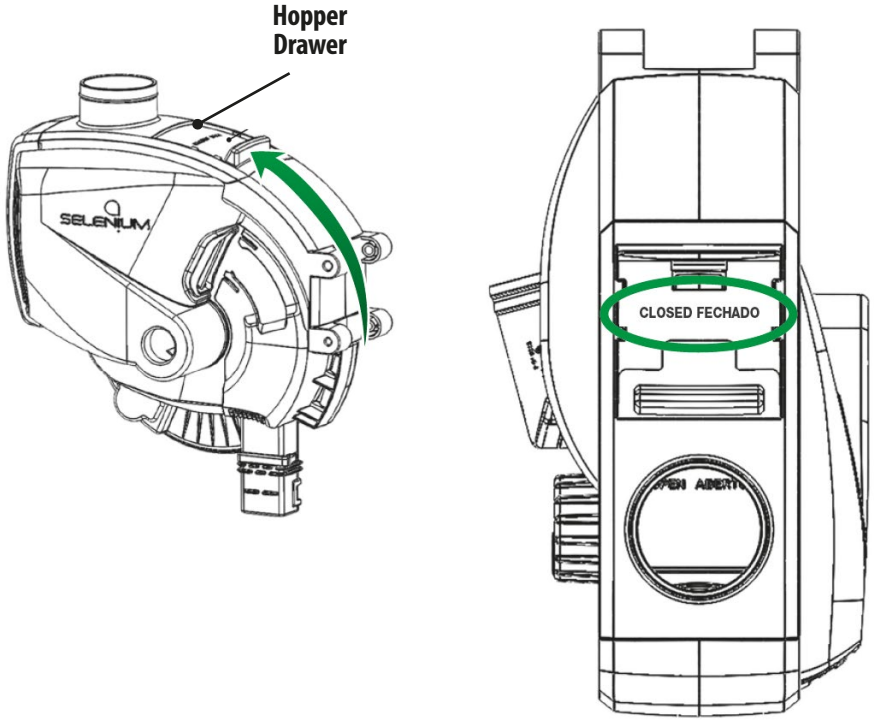
04 **-** Flose the lid by pressing it against the dispenser fitting until the **Handle** locks. Make sure that the lid lock has closed correctly.



▪ Dispenser

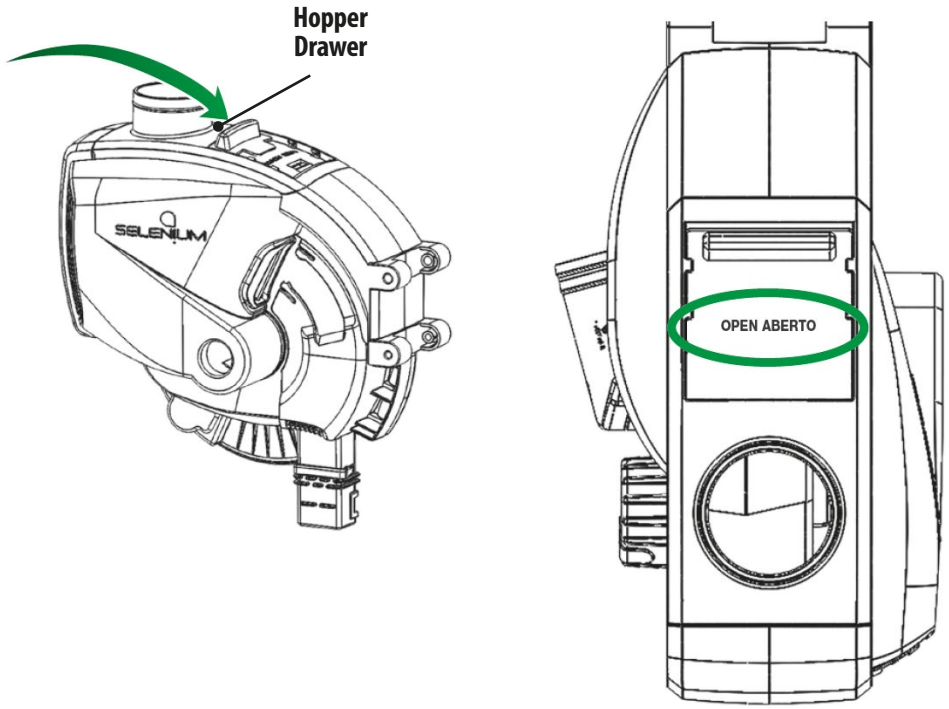
• Crop change with SELENIUM metering unit full of seeds

01 - Push the **Hopper** drawer, in the direction indicated in the image below,until the end of the course. In this position, the **Hopper** will be closed, displaying the indication **"CLOSED".**



02 - Repeat the operations from the topic **"Disk Assembly"** in this manual.

03 - Reopen the **Hopper Drawer**, in the direction indicated below, until the end of the stroke. In this position, the Hopper will be open, displaying the indication **"OPEN".**



▪ Seed dispensing system

• Display - SELENIUM Dispenser (Optional)

The **SELENIUM** dispenser has a display that offers the possibility to follow the result of the organization of the seeds inside the dispenser. To open the display, just slide it as shown in the image on the side.

After checking the singularity, keep the display closed.

▪ Dispenser

• VSET2 dispenser (Opcional)

The **SPE TOP LINE FLEX AIR** can be optionally purchased with the **VSET2** seed meter.

DISCS STANDARDS:

CORN SOYBEAN

OPTIONAL DISCS:

COTTON PEANUT CANOLA SUNFLOWERS BEAN SORGHUM

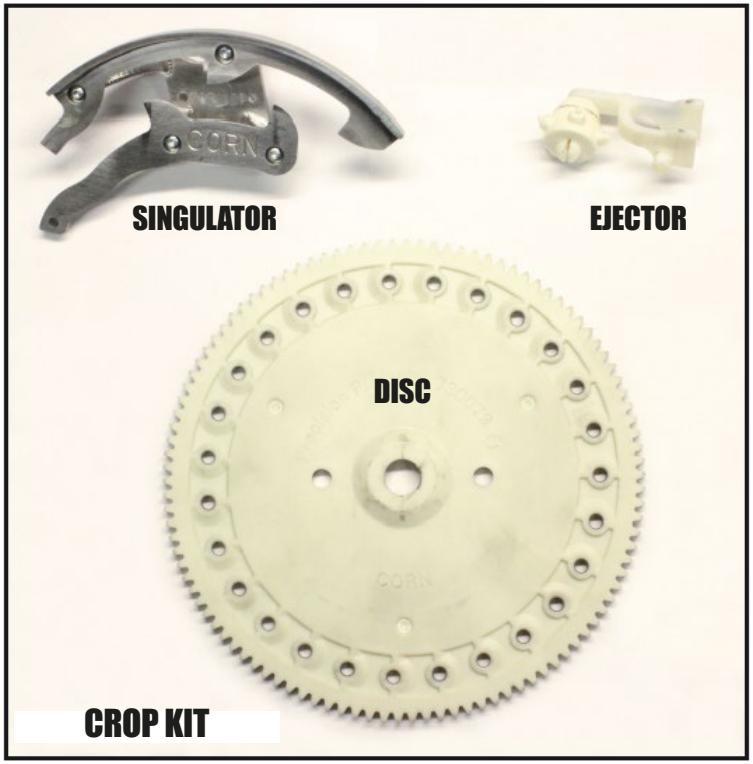
⚠ ATTENTION

Check the specification of the standard discs that come with the SPE TOP LINE FLEX AIR on the next page.

▪ Dispenser

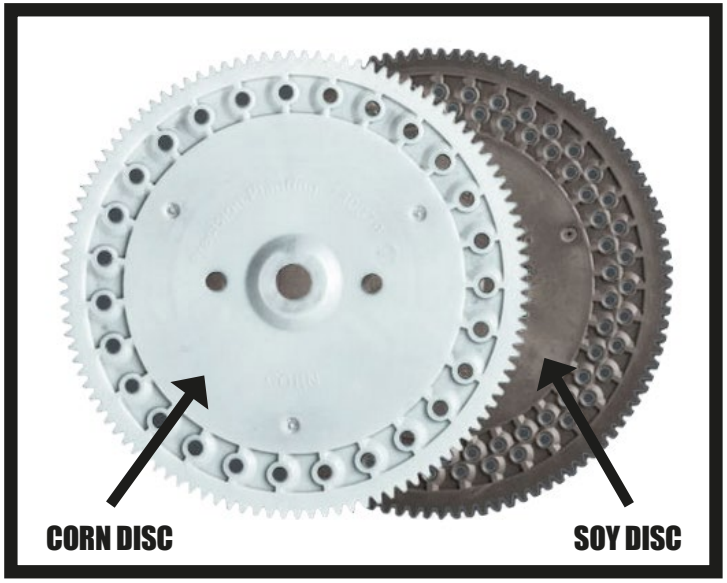
• VSET2 Crop discs and kits

The **SPE TOP LINE FLEX AIR** leaves the factory with 2 crop kits: Soybean kit (mounted on the sower) and the Corn kit (shipped in the package). Each kit has 3 components: Singulator, ejector and disc, as shown below.



KITS		
CROPS	**CODES**	**DESCRIPTIONS**
SOYBEAN	6020210317-3	KIT SOY VSET2 56 HOLES (768690)
CORN	6020210298-3	KIT CROP CORN (768341)

In the kits that accompany the **SPE TOP LINE FLEX AIR** are the soy and corn distribution discs, **as shown below.**



⚠ ATTENTION | **All 3 items in the kit will need to be changed every time you change the crop you are planting.**

❗ IMPORTANT | **To understand supported crops, see the Crop Guide on page 54.**

▪ Dispenser

• Installation of the VSET2 dispenser - Precision Planting

DISTRIBUIDOR VSET (FOR SEED TUBE)

Modes vSet 2 base gauge (housing* +cover)

*vDrive installed

▪ Dispenser

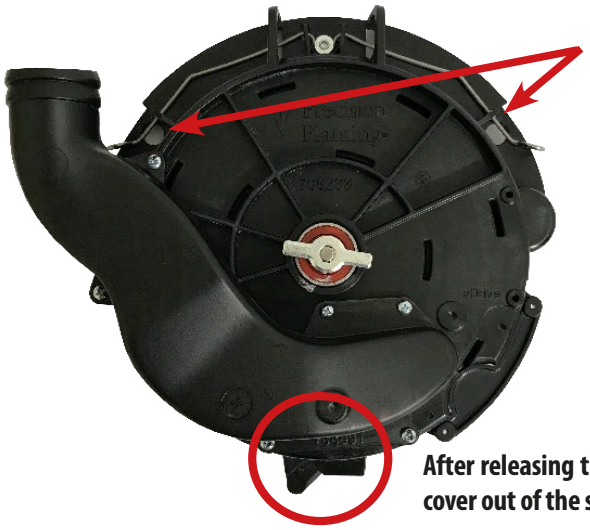
• Installation of the VSET2 Crop Kit- Part I

Before you begin installation of the kit in the dispenser, identify the crop kit to be used.

STAGE 1

Open the manifold by releasing the retaining springs by pulling and separating the two halves and lifting the cover out of the integrated slot and latch restraint.

The dispenser housing contains the disc and the ejector wheel. The singulator is mounted on the opposite half of the meter, also known as the seed containment cap.



Dispenser retaning springs: to release, pull back and up.

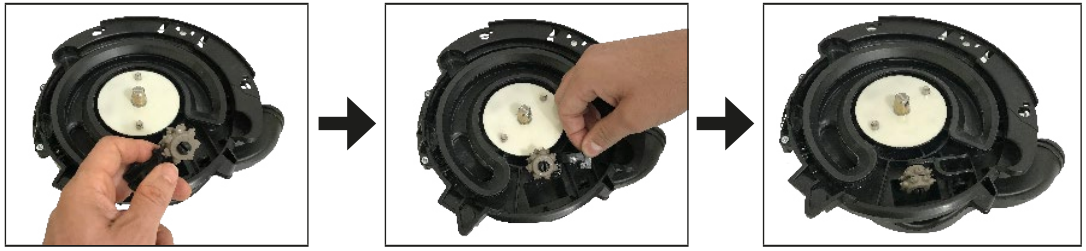
After releasing the retaining springs lift the cover out of the slot and tab restriction.

STAGE 2

The vSet 2 ejector must be placed in the housing first and behind the manifold seal.

To begin, seat the lower pin in the spring before placing the plastic in place. The images illustrate how the ejector is inserted into position.

To remove, simply apply pressure to the end of the holder that keeps it in place.

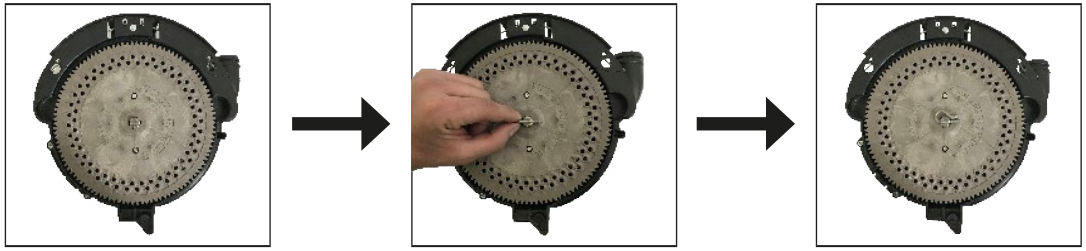


STAGE 3

Align the disc and slide the locking pin into place. The pin will have less resistance if inserted vertically. The dispenser will have shims inserted in its center. The shim installation process is at the end of the manual.

When inserting the disc, be sure not to crush or curl the vacuum seal. If there are cracks or broken seams in the seal, replace it immediately.

To remove the locking pin, hold the disc in place and pull the locking pin with it vertically as shown in the image below. Do not lose the locking pin. Also, be sure to leave the shims under the disc in place during removal.

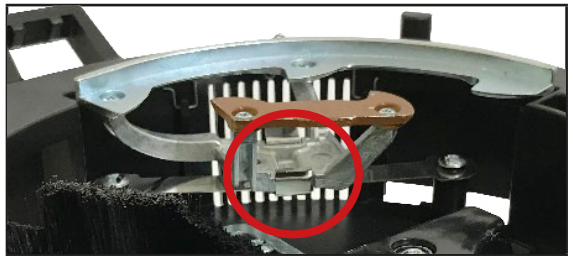


▪ Dispenser

• Installation of the VSET2 Crop Kit - Part II

STAGE 4

The final step in the crop kit installation is to connect the singulator to the dispenser cap. First, insert the singulator base into the lower bracket and press against the upper bracket. Make sure the upper and lower sides of the singulator are level with the spring latches. Make sure that the singulator is fully seated to ensure proper dispenser connection when assembling the cover and housing. To remove the singulator, pull back the release latch and it will pop out.



STAGE 5

In order to remove vSet 2 components for maintenance, remove parts as they were installed in Steps 1-4.

STAGE 6

When assembling the two halves of the dispenser, start by placing the housing slit in the seed cover latch to ensure proper alignment.

▪ Dispenser

• Installation of the VSET2 Crop Kit - Part III

STAGE 7

The two halves of the dispenser are correctly connected when the retaining springs are fully engaged on the retaining pillars of the seeds. Be sure to keep the singulator pressed against the cover so that it rests correctly on the seed disc.

STAGE 8

The position of the deflector may need to be adjusted depending on the crop to be planted. See the Crop Setup Guide for vSet2 for deflector adjustment for various crops. As a general rule, set the deflector plate to the lowest possible position, but ensuring that the seeds always flow and do not obstruct the dispenser inlet chute.

▪ System

• Seed container assembly - Part I

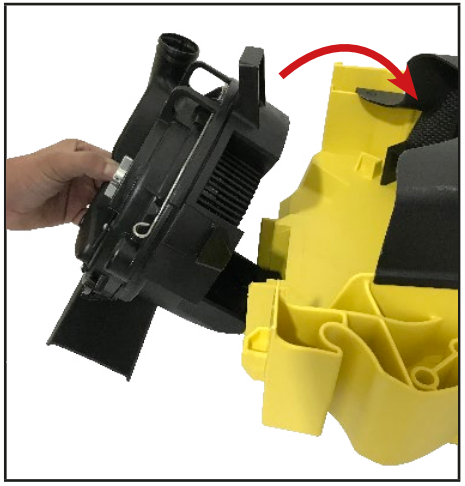
STAGE 1

After properly installation of the dispenser crop kits, you must connect it to the seed container. Align the vSet2 hooks using an angle to connect the dispenser hook interface to the seed hopper. This will ensure proper connection. If these hooks do not lock, the dispenser will not attach properly to the seed container.

The images below illustrate the incorrect (red circle) and correct (green circle) locking of the vSet2 dispenser in the seed reservoir.

STAGE 2

Rotate the dispenser toward the seed container lock.



▪ System

• Seed container assembly - Part II

STAGE 3

Lock the dispenser in the seed container. Apply enough force to bend the lock until the upper bracket snaps into place. Note the final position below. To remove the dispenser, use the vSet 2 dispenser housing bracket as a lever to pull the dispenser while bending the seed container lock in one fluid motion.

STAGE 4

To release the dispenser, press the lock and pull it away from the seed container. Then rotate until the seed inlet hooks are free to slide out of the seed container latches.

BALDAN

System

• VSET2 Crop Guide

Precision Planting

Graphite should be used in good proportion.
The color in the table corresponds to the actual colors of the parts. BOLD components already included in the KIT.

*WaveVision reads seeds at least 3mm in size.
** Millet screens are used in planter with center box.
*** For best performance with large or long seeds, it may be necessary to remove the singulador.
**** For some seed sizes it may be appropriate to remove the seed inlet adjustment plate.

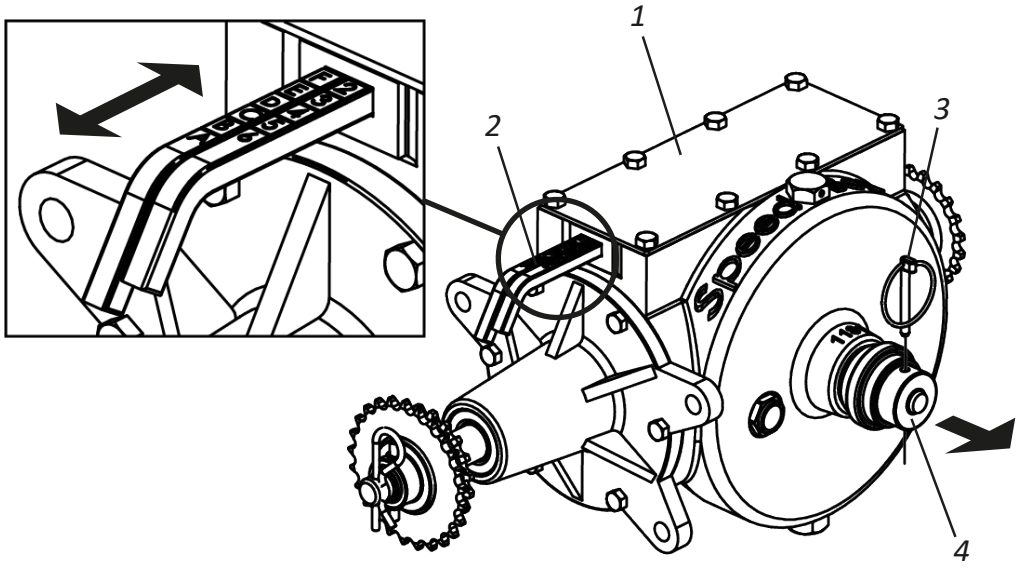
Cultura		Milho	Soja		Milho Doce				Milho Pipoca		Sorgo/ Milheto	Abóbora	Algodão	Feijão			Girassol						Canola	Amendoim
Tamanho (Qualitativo)			Baixa / Media populaçã	Alta População	Pequeno	Medio	Grande	X-Grande	Pequeno / Médio	Grande		Del Monte / Libby	Singulado (Alta Taxa)	Pequeno	Médio	Grande	Comestivel Grande	Comestivel Pequeno	#1	#2	#3	#4		
Tamanho (Sementes/KG)		2200-6200	4400-10000	4400-10000	4400-10200				3300-10650		26K-42K	-	9300-14000	>4400	2860-4400	2860	4400-8800		6600-22000				166K-400K	445 - 3111
Vacuo (Pol agua)		20"	20"	20"	18"-22"	18"-22"	18"-22"	18"-22"	20"	20"	10"-16"	11"-12"	20"	18"-22"	18"-24"	18"-26"	12"-13"	11"-12"	11"-12"	11"-12"	7"-8"	6"-7"	16"-26"	20"-30"
Vacuo (milibar)		50	50	50	40-50	40-50	40-50	40-50	60	60	25-40	27-30	60	40-55	40-60	40-65	30-32	27-30	27-30	27-30	17-19	15-17	40 - 65	50 - 75
Vacuo (PSI)		0,722	0,722	0,722	0,65-0,72	0,65-0,72	0,65-0,72	0,65-0,72	0,72	0,72	0,36 - 0,58	0,4 - 0,43	0,72	0,65-0,8	0,65-0,87	0,65-0,94	0,43-0,47	0,4 - 0,43	0,4 - 0,43	0,4 - 0,43	0,25-0,29	0,21-0,25	0,4 - 0,65	0,72 - 1,08
Pos. ajust entrada sementes		2	2	2	4	4	4	4	2	2	1	3	1	2	3	4	4	4	4	4	3	2	4	4****
PN Kit completo		768341	768690	768342							768347		768499		768341	768343	768341	768341					768348	768429
Disco	Nome	Milho	Soja 56 furos	Soja	Especial	Especial	Especial	Especial	Especial	Especial	Large Sugarbeet	Especial	Singulated High Rate Cotton	Especial	Milho	Edible Beans Larg	Milho	Milho	Especial	Especial	Especial	Especial	Canola	Peanut
	# de furos	27	56	80	27	27	27	27	27	27	32	27	32	27	27	32	27	27	27	27	27	27	80	32
	carreira	simples	simples	dupla	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	simples	dupla	simples
	tam de furo (pol)	0,176	0,155	0,155	0,125	0,135	0,145	0,155	0,115	0,125	0,086	0,125	0,115	0,155	0,176	0,210	0,176	0,176	0,155	0,135	0,115	0,115	0,03937008	0,230
	tam de furo (mm)	4,470	3,937	3,937	3,175	3,429	3,683	3,937	2,921	3,175	2,184	3,175	2,921	3,937	4,470	5,334	4,470	4,470	3,937	3,429	2,921	2,921	1	5,842
	PN	730079	768687	730039	730082	730083	730084	730085	730081	730082	730291	730082	730296	730085	730079	730294	730079	730079	730085	730083	730081	730081	768338	730361
Singulador	Nome	Milho	Milho	Soja	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Soja	Milho	Milho	Milho	Milho	Milho	Milho	Milho	Soja***
	PN	768355	768355	768360	768355	768355	768355	768355	768355	768355	768355	768355	768355	768355	768355	768360	768355	768355	768355	768355	768355	768355	768355	768360
Roda Ejetora	Nome	Milho	Soja 56	Soja	Especial	Especial	Especial	Especial	Especial	Especial	Sugarbeet	Especial	Sugarbeet	Especial	Milho	L Edible	Milho	Milho	Especial	Especial	Especial	Especial	Canola	L Edible
	PN	768291	768689	768292	768293	768293	768293	768293	768293	768293	768295	768293	768295	768293	768291	768294	768291	768291	768293	768293	768293	768293	768680	768294
Componentes adicionais	Descriçao										Tela para milheto**					Escova L Superior	Escova L Superior						KIT Raspador	Escova L Superior
	PN										720253**					768428	768428						768335	768428
Selo Vácuo (Borracha)		730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518	730518
WaveVision Recomendado?		Sim	Sim	Sim							Não			Sim	Sim	Sim							Sem mon. População	
Principais Cultivares			Abaixo de 20 sementes por metro	Acima de 25 sementes por metro										Variedade Campos Gerais, BRS Estilo, BRS Dama	A maior parte das variedades	Feijão Rajado								

▪ Seed dispensing system

• Speed Box

The **SPE TOP LINE FLEX AIR** is equipped with the Speed Box system (1), which activates the distribution system with simple adjustments, ensuring quick rotation changes. To adjust the seeds, proceed as follows:

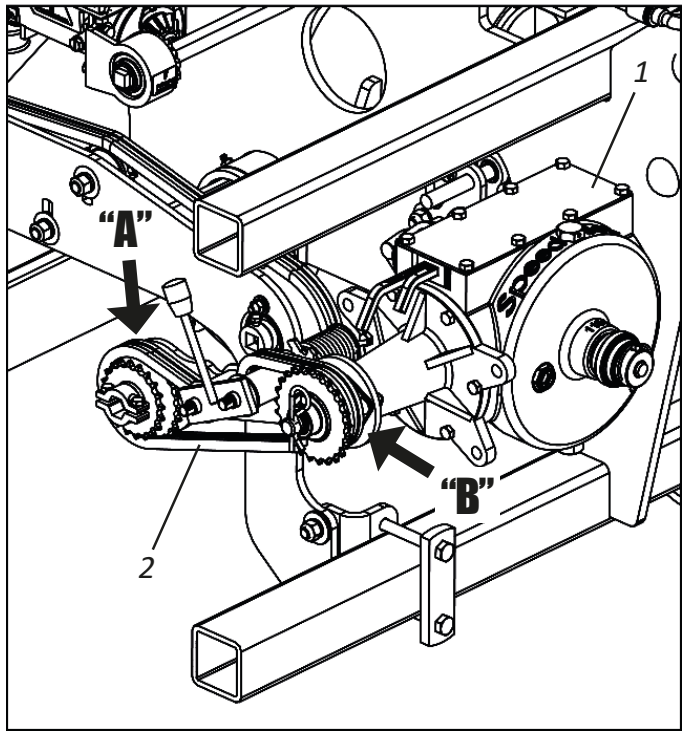
01 - Select the desired quantity in the tables and check the corresponding combination on the levers (2). **EXAMPLE**: Position **F2** in the table, indicates that the lever with letters must be in the **"F"** position and the lever with numbers must be in the **"2"** position.



02 - To move the levers, remove the lock (3), pull the handle (4), then adjust, the levers as per the example above.When the combination is finished, return the handle (4) and replace the lock (3).

• Adjustment for seed distribution

The seed adjustment is done through the Speed Box (1). To obtain more adjustments, reverse the chain on the drive gear **"A"** and the driven gear **"B".** After changing the gears, check the chain tension (2).



⚠ ATTENTION **When checking the chain tension (2) if more pressure is needed on the tensioner, proceed according to the instructions on page 91.**

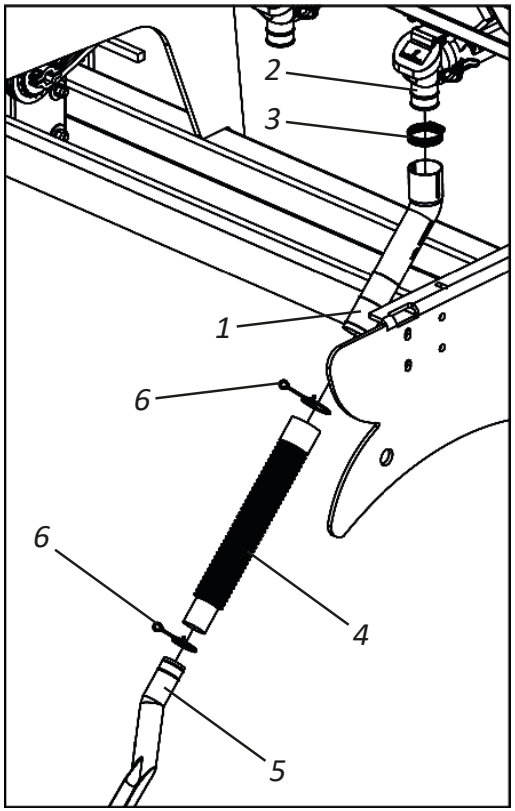
SEED Table of Distribution per linear meter- SPE TOP LINE FLEX AIR								
Ratchet hex shaft gear			20	Speed Box Inlet Gear				25
Speed Box combination	Number of Holes in the Seed Dispenser Disc							
	20	28	40	48	55	64	75	84
F - 1	1,6	2,3	3,3	3,9	4,5	5,3	6,2	6,9
F - 2	1,8	2,6	3,7	4,4	5,1	5,9	6,9	7,8
E - 1	2,1	2,9	4,1	4,9	5,7	6,6	7,7	8,6
F - 3	2,1	3,0	4,2	5,1	5,8	6,8	7,9	8,9
E - 2	2,3	3,2	4,6	5,5	6,4	7,4	8,7	9,7
D - 1	2,5	3,5	4,9	5,9	6,8	7,9	9,2	10,4
F - 4	2,5	3,5	4,9	5,9	6,8	7,9	9,2	10,4
E - 3	2,6	3,7	5,3	6,3	7,3	8,5	9,9	11,1
D - 2	2,8	3,9	5,5	6,7	7,6	8,9	10,4	11,7
C - 1	2,9	4,0	5,8	6,9	7,9	9,2	10,8	12,1
F - 5	3,0	4,1	5,9	7,1	8,1	9,5	11,1	12,4
E - 4	3,1	4,3	6,2	7,4	8,5	9,9	11,6	12,9
D - 3	3,2	4,4	6,3	7,6	8,7	10,1	11,9	13,3
C - 2	3,2	4,5	6,5	7,8	8,9	10,4	12,1	13,6
B - 1	3,3	4,6	6,6	7,9	9,0	10,5	12,3	13,8
A - 1	3,7	5,2	7,4	8,9	10,2	11,8	13,9	15,5
A - 2	4,2	5,8	8,3	10,0	11,4	13,3	15,6	17,5
B - 3	4,2	5,9	8,5	10,1	11,6	13,5	15,9	17,8
C - 4	4,3	6,0	8,6	10,4	11,9	13,8	16,2	18,1
D - 5	4,4	6,2	8,9	10,7	12,2	14,2	16,6	18,6
E - 6	4,6	6,5	9,2	11,1	12,7	14,8	17,3	19,4
A - 3	4,8	6,7	9,5	11,4	13,1	15,2	17,8	20,0
B - 4	4,9	6,9	9,9	11,8	13,6	15,8	18,5	20,7
C - 5	5,2	7,2	10,4	12,4	14,2	16,6	19,4	21,7
D - 6	5,5	7,8	11,1	13,3	15,3	17,8	20,8	23,3
A - 4	5,5	7,8	11,1	13,3	15,3	17,8	20,8	23,3
B - 5	5,9	8,3	11,8	14,2	16,3	18,9	22,2	24,9
C - 6	6,5	9,1	12,9	15,5	17,8	20,7	24,3	27,2
A - 5	6,7	9,3	13,3	16,0	18,3	21,3	25,0	28,0
B - 6	7,4	10,4	14,8	17,8	20,3	23,7	27,7	31,1
A - 6	8,3	11,7	16,6	20,0	22,9	26,6	31,2	35,0

SEED Table of Distribution per linear meter - SPE TOP LINE FLEX AIR								
Ratchet hex shaft gear			25	Speed Box inlet gear				20
Speed Box combination	Number of Holes in the Seed Dispenser Disc							
	20	28	40	48	55	64	75	84
F - 1	2,6	3,6	5,1	6,2	7,1	8,2	9,6	10,8
F - 2	2,9	4,0	5,8	6,9	7,9	9,2	10,8	12,1
E - 1	3,2	4,5	6,4	7,7	8,8	10,3	12,0	13,5
F - 3	3,3	4,6	6,6	7,9	9,1	10,6	12,4	13,9
E - 2	3,6	5,1	7,2	8,7	9,9	11,6	13,5	15,2
D - 1	3,9	5,4	7,7	9,2	10,6	12,3	14,4	16,2
F - 4	3,9	5,4	7,7	9,2	10,6	12,3	14,4	16,2
E - 3	4,1	5,8	8,3	9,9	11,4	13,2	15,5	17,3
D - 2	4,3	6,1	8,7	10,4	11,9	13,9	16,3	18,2
C - 1	4,5	6,3	9,0	10,8	12,4	14,4	16,9	18,9
F - 5	4,6	6,5	9,2	11,1	12,7	14,8	17,3	19,4
E - 4	4,8	6,7	9,6	11,6	13,2	15,4	18,1	20,2
D - 3	5,0	6,9	9,9	11,9	13,6	15,9	18,6	20,8
C - 2	5,1	7,1	10,1	12,1	13,9	16,2	19,0	21,2
B - 1	5,1	7,2	10,3	12,3	14,1	16,4	19,3	21,6
A - 1	5,8	8,1	11,6	13,9	15,9	18,5	21,7	24,3
A - 2	6,5	9,1	13,0	15,6	17,9	20,8	24,4	27,3
B - 3	6,6	9,2	13,2	15,9	18,2	21,1	24,8	27,7
C - 4	6,7	9,4	13,5	16,2	18,5	21,6	25,3	28,3
D - 5	6,9	9,7	13,9	16,6	19,1	22,2	26,0	29,1
E - 6	7,2	10,1	14,4	17,3	19,9	23,1	27,1	30,3
A - 3	7,4	10,4	14,9	17,8	20,4	23,8	27,9	31,2
B - 4	7,7	10,8	15,4	18,5	21,2	24,7	28,9	32,4
C - 5	8,1	11,3	16,2	19,4	22,3	25,9	30,3	34,0
D - 6	8,7	12,1	17,3	20,8	23,8	27,7	32,5	36,4
A - 4	8,7	12,1	17,3	20,8	23,8	27,7	32,5	36,4
B - 5	9,2	12,9	18,5	22,2	25,4	29,6	34,7	38,8
C - 6	10,1	14,2	20,2	24,3	27,8	32,4	37,9	42,5
A - 5	10,4	14,6	20,8	25,0	28,6	33,3	39,0	43,7
B - 6	11,6	16,2	23,1	27,7	31,8	37,0	43,3	48,5
A - 6	13,0	18,2	26,0	31,2	35,8	41,6	48,8	54,6

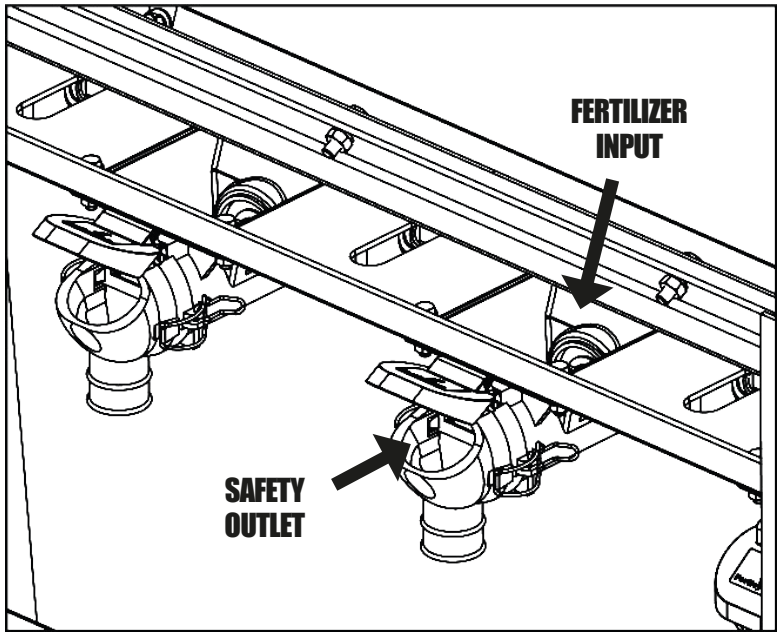
▪ Fertilizer dispensing system

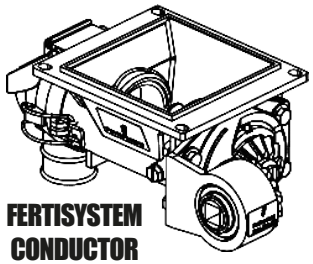
• Fertisystem fertilizer conductor

To conduct the fertilizer from the distributors to the ground, fit the degree spouts (1) to the outputs of the fertisystem conductors (2) through the clamps (3). Then, place the hoses (4) in the spouts in degree (1) and in the spouts (5) fixing through the locking springs (6).



The fertisystem, has safety outputs that ensure the proper functioning of the system without damaging it.In case of clogging of the hose and the feeder, aclean the feeder up to the end of the hose near the furrowing rod or double disc, as clogging of the system can occur due to roots, pieces of plastic and other objects.





FERTISYSTEM
CONDUCTOR

⚠ ATTENTION

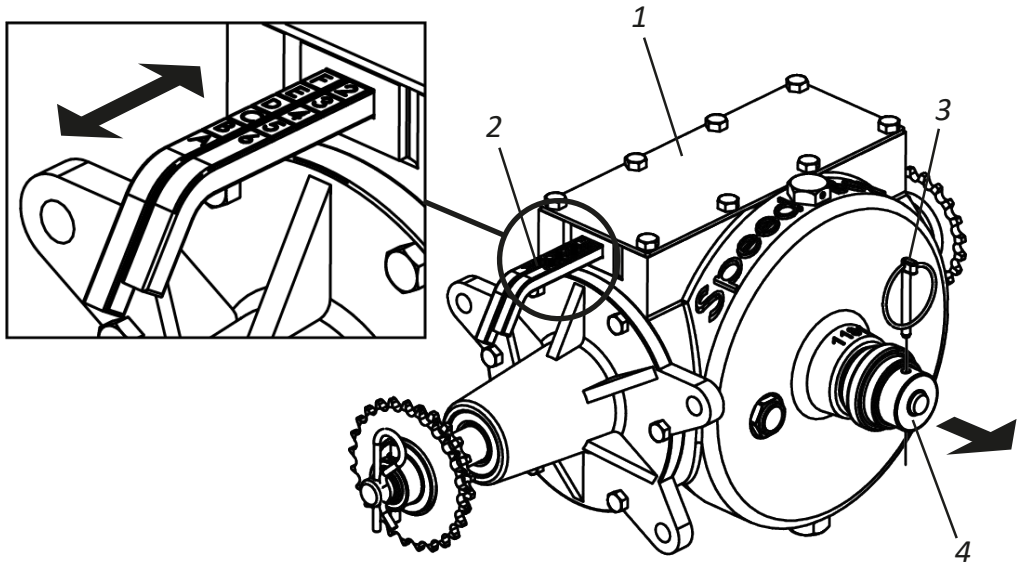
Check batchers and hoses daily and clean their outlets. When the fertilizer has impurities or is damp, clean it more often.

▪ Fertilizer dispensing system

• Speed Box

The **SPE TOP LINE FLEX AIR** is equipped with the Speed Box system (1), which activates the distribution system with simple adjustments, ensuring quick rotation changes. To adjust the fertilizer, proceed as follows:

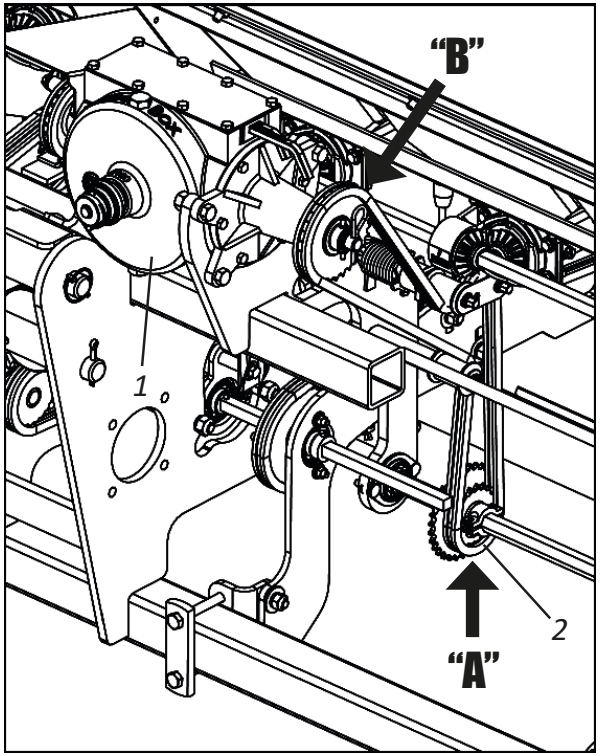
01 - Select the desired quantity in the tables and check the corresponding combination on the levers (2). **EXAMPLE**: Position **F2** in the table, indicates that the lever with letters must be in the **"F"** position and the lever with numbers must be in the **"2"** position.



02 - To move the levers, remove the lock (3), pull the handle (4), then adjust the levers as per the example above. When combining is complete, return the handle (4) and replace the lock (3).

• Adjustment of the fertilizer dispensing

The fertilizer adjustment is done through the Speed Box (1). To obtain more adjustments, reverse the chain in drive gear **"A"** and driven gear **"B"**. After changing the gears, check the chain tension (2).



⚠ ATTENTION **When checking the chain tension (2) if more pressure is needed on the tensioner, proceed according to the instructions on page 91.**

FERTILIZER Table of Distribution per linear meter- SPE TOP UNE FLEX AIR															
Ratchet hex shaft gear						20	Speed Box inlet gear								31
Combinação Speed Box	Gramas 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 Table of Distribution per linear meter- SPE TOP UNE FLEX AIR															
R atchet hex shaft gear						31	Speed Box inlet gear								20
Combinação Speed Box	Gramas 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

▪ Calculations

• Practical calculation for fertilizer dispensing

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

02 - **Example:** Seeder with a spacing of 450 mm, to distribute 500 kg of fertilizer per Ha, use the formula below:

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

WHER:

E = Spacing between lines (mm)
Q = Amount of fertilizer to be distributed (kg)
A = Area to be fertilized (m^2)
D = 50 meters distance (test)
X = F ertilizer grams to 50 meters

Resolve: $X = \frac{450 \times 500}{10.000} \times 50$

X = 22.50 x 50 = 1125

X = 1125 grams to 50 meters per line

• Practical test to measure the amount of fertilizer and seed dispensing

01 - For greater precision in the distribution of fertilizer or seed, make the test of the amount to be distributed at the place of planting, because for each land there is a condition.

02 - Mark the test distance in the table, we opted for 50 linear meters.

03 - Fill the tanks of the seeder at least halfway. Run an average of 10 meters outside the test area so that the fertilizer and seeds fill the batchers.

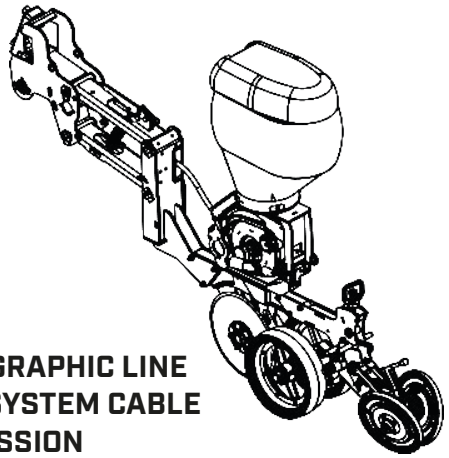
04 - Seal the exit from the seed nozzles and place collection receptacles on the manure exits. Move the tractor in the demarcated area, always at the same speed you will plant, from 5 to 6 km/h.

05 - After going through the demarcated space, remove the seed nozzle seal and collect them for counting and also collect the fertilizer for weighing the amount collected. If necessary, increase or decrease the amount of seed and fertilizer to be distributed, check the table.

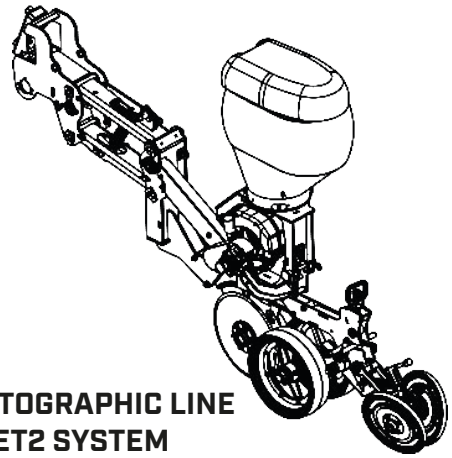
⚠ ATTENTION | **We suggest that a practical test be carried out on the dispensing of the fertilizer and seed, over 50 m, to later compare the results of the fertilizer and the seed.**

▪ Planting lines

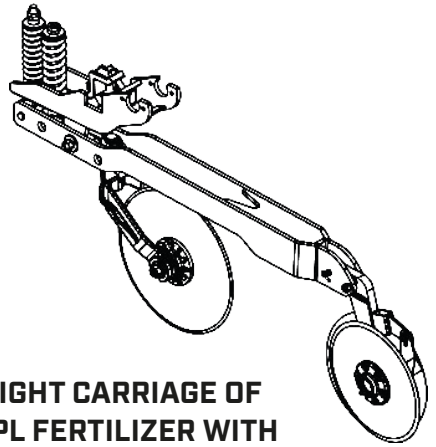
• Planting lines models



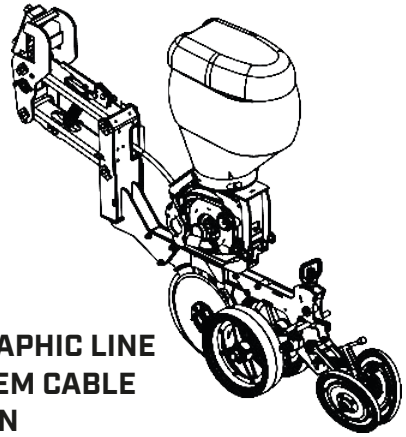
BIG LEFT PANTOGRAPHIC LINE WITH SELENIUM SYSTEM CABLE TRANSMISSION



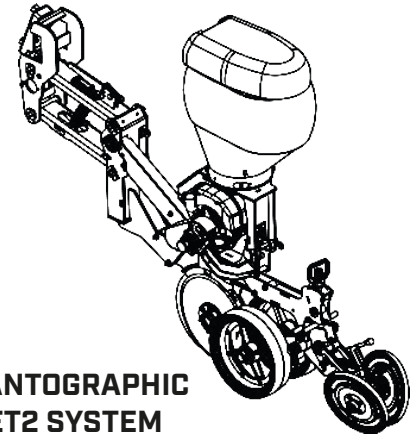
BIG LEFT PANTOGRAPHIC LINE WITH VSET2 SYSTEM



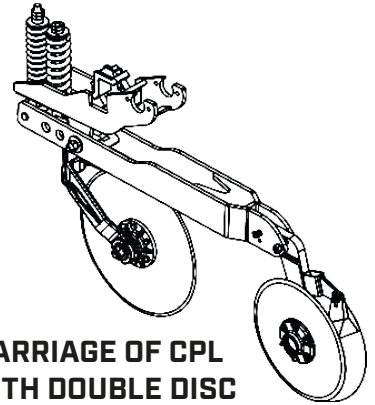
BIG RIGHT CARRIAGE OF THE CPL FERTILIZER WITH DOUBLE DISC



SMALL RIGHT PANTOGRAPHIC LINE WITH SELENIUM SYSTEM CABLE TRANSMISSION



SMALL RIGHT PANTOGRAPHIC LINE WITH VSET2 SYSTEM



SMAL LEFT CARRIAGE OF CPL FERTILIZER WITH DOUBLE DISC

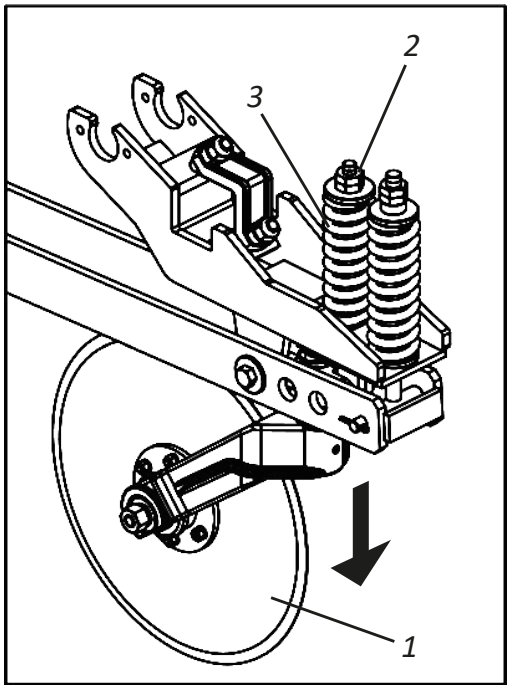
▪ Adjustments of lines

• Pressure adjustment of the cutting disc spring

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

01 - Turn the nut (2) clockwise to increase pressure on the spring (3).
02 - Turn the nut (2) **COUNTERCLOCKWISE** to decrease pressure on the spring (3).

SPRING PRESSURE ADJUSTMENT
(+) INCREASED SPRING PRESSURE:
INCREASED PRESSURE OF CUTTING DISC IN THE SOIL.
(-) DECREASED SPRING PRESSURE?
DECREASED PRESSURE OF CUTTING DISC IN THE SOIL.



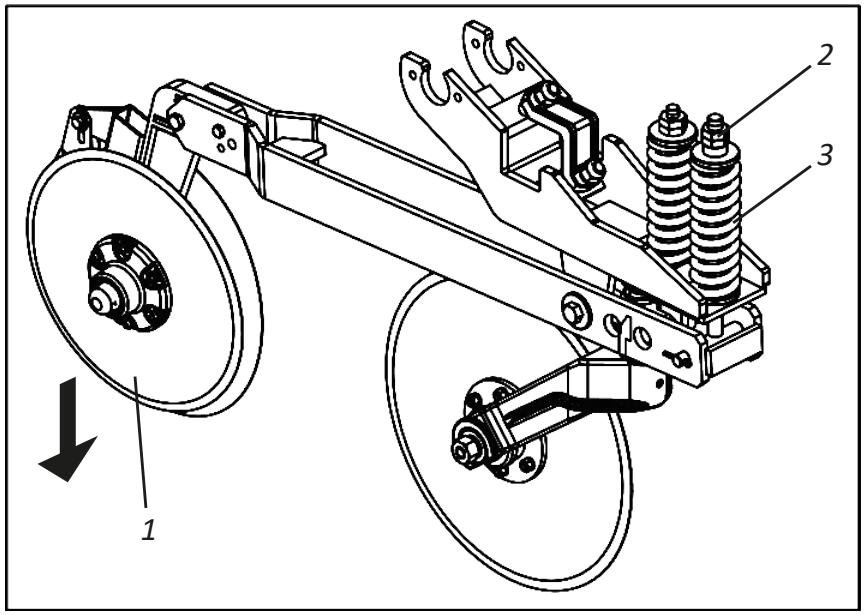
⚠ ATTENTION

When adjusting the spring pressure of the cutting disc (1), take care not to nullify the articulation action of the cutting disc (1).

• Pressure adjustment of the dual disc spring

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

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



SPRING PRESSURE ADJUSTMENT	
(+) INCREASED SPRING PRESSURE:	HIGHER THE PRESSURE OF THE DOUBLE DISC ON THE GROUND.
(-) DECREASED SPRING PRESSURE:	LOWER THE PRESSURE OF THE DOUBLE DISC ON THE GROUND

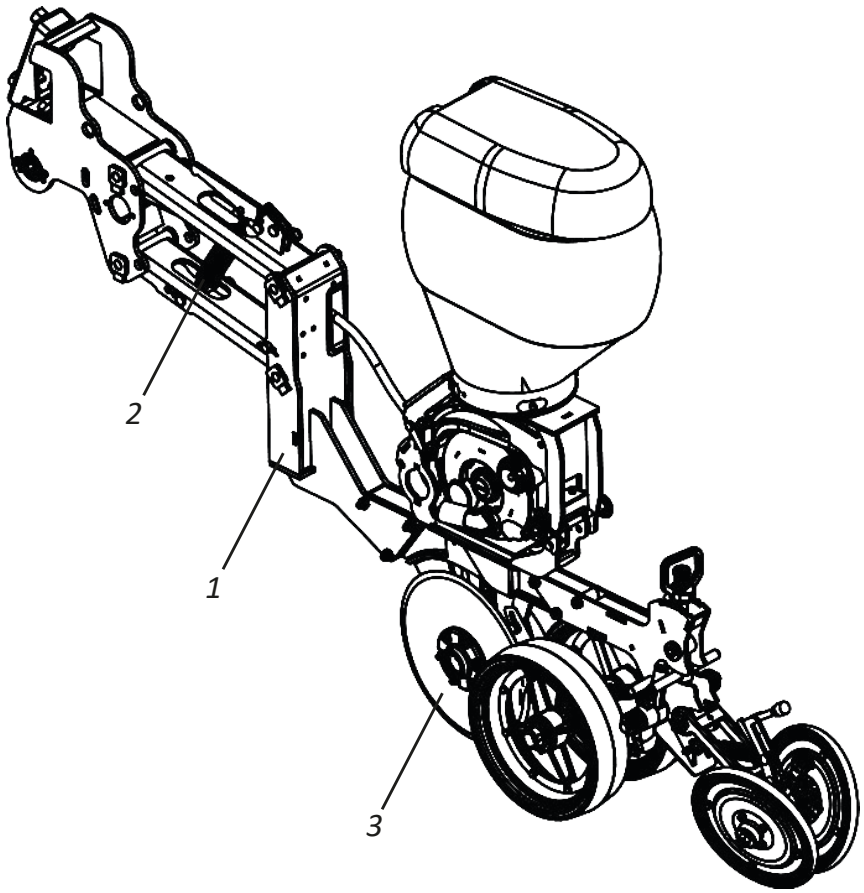
❗ IMPORTANT

The cutting disc spring pressure and double disc pressure adjustments must be made in the field before starting work, observing the type of soil to be worked on, in order to obtain a better performance from the seeder.

▪ Adjustment of the lines

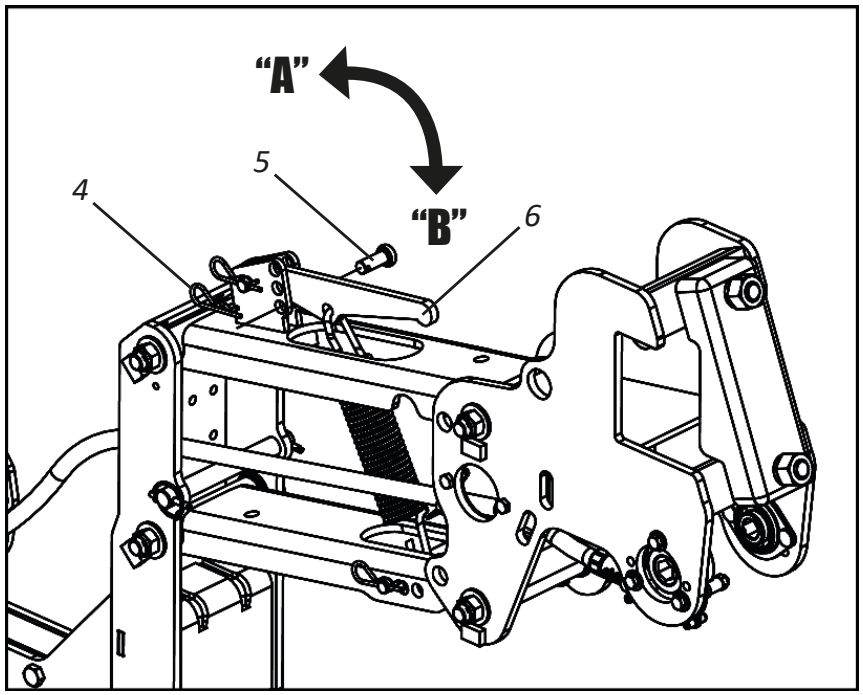
• Adjustment of the spring pressure - Part I

The line (1) has a pressure spring (2) that, when regulated to give more or less pressure, will increase or decrease the force on the double disc (3). To adjust the spring pressure, proceed as follows:



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

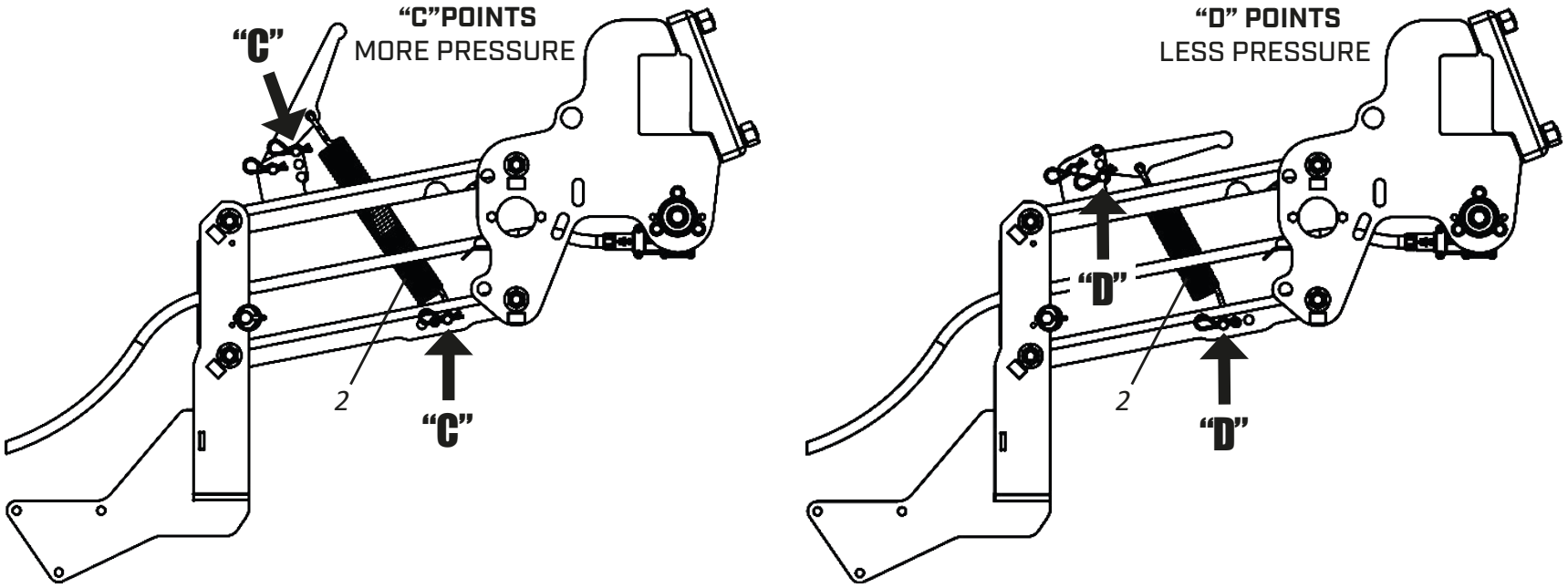
02 - Then lock the lever (6) again with pin 5 and lock (4).



SPRING PRESSURE ADJUSTMENT	
LEVER IN POSITION "A"	HIGHER SPRING PRESSURE.
LEVER IN POSITION"B"	LOWER SPRING PRESSURE.

▪ Adjustment of the lines

• Adjustments of the spring pressure - Part II



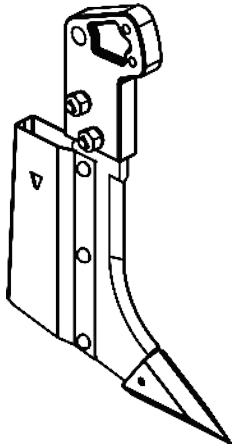
⚠ ATTENTION | **When adjusting the spring pressure (2), check which of the adjustment points "C" and "D" best meet your work needs. This adjustment must be made in the field before starting work, observing the type of soil to be worked on.**

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

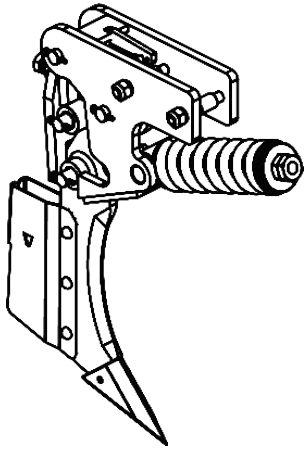
▪ Adjustment of the lines

• Furrowers

The **SPE TOP LINE FLEX AIR** can optionally be purchased with 2 models of furrowers.



FURROWER W/ FUSE PIN

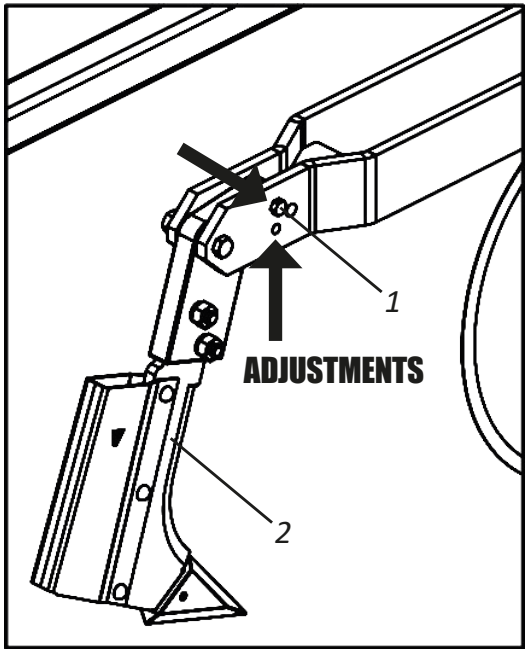


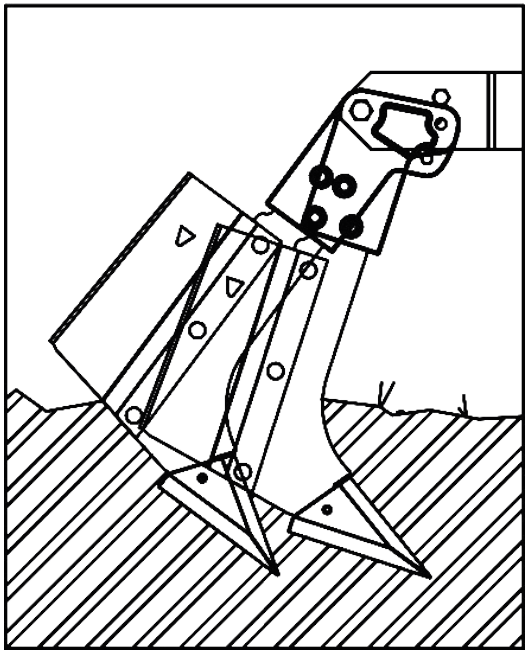
FURROWER W/ AUTOMATIC TRIPPING AND RESETTING

• Adjustment of the furrower attack angle

The fertilizer furrower has several work adjustments, for a better adjustment to the type of soil to be worked on. To adjust the furrower attack angle, proceed as follows:

01 **-** Remove the screw (1), articulate the furrower (2) in the ideal setting and replace the screw (1).



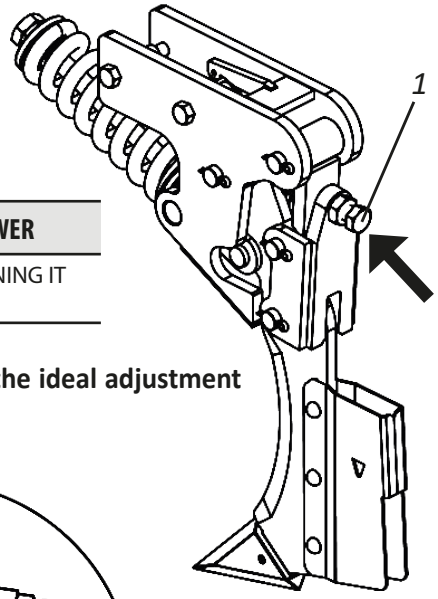


IMPORTANT **At the end of the adjustment, repeat the procedure on all lines, avoiding variation between them.**

▪ Adjustment of the lines

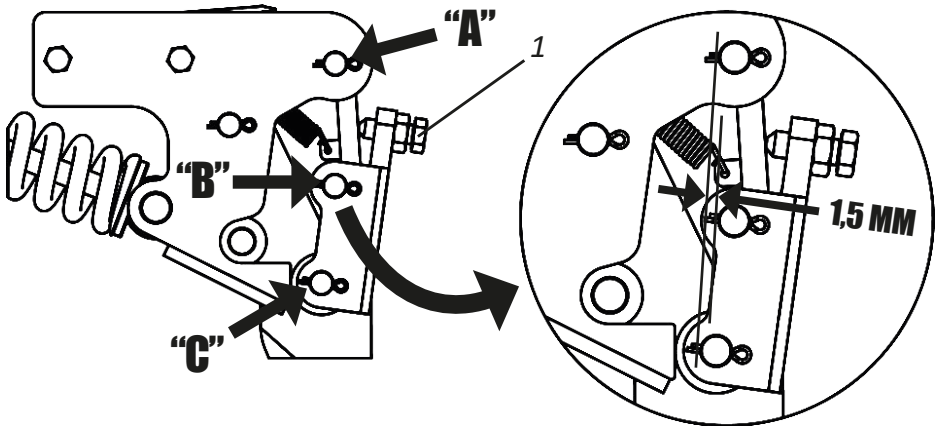
• Adjustment of the furrower w/ automatic tripping and resetting (Optional)

The furrower with automatic tripping has several working settings, to better adjust to the type of soil to be worked. To adjust the furrower trip sensitivity, proceed as follows:



BIG RESETTER OF THE FURROWER	SMALL RESET OF THE FURROWER
TIGHTEN THE SCREW (1) BY TURNING IT CLOCKWISE.	LOOSEN THE SCREW (1) BY TURNING IT COUNTERCLOCKWISE

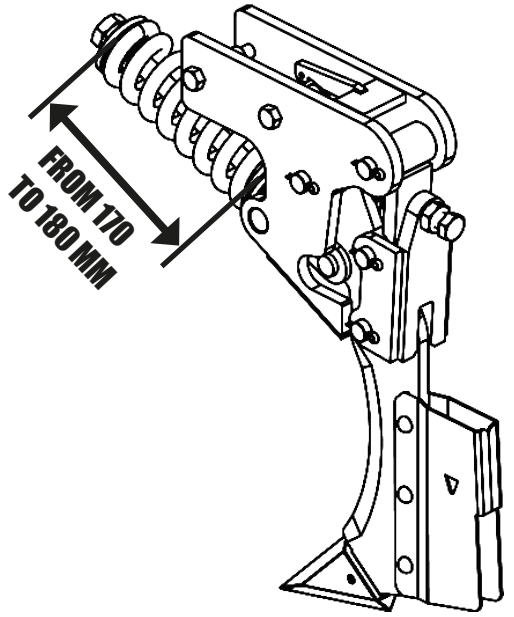
⚠ ATTENTION **This adjustment is minimal, thus having the ideal adjustment with the screw or less.**



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

• Adjustment of the furrower w/ automatic tripping and resetting load (Optional)

The automatic resetting system of the plow leaves the factory with the spring preload adjustment determined, which can vary between **170 to 180 mm** in its length.



⚠ ATTENTION

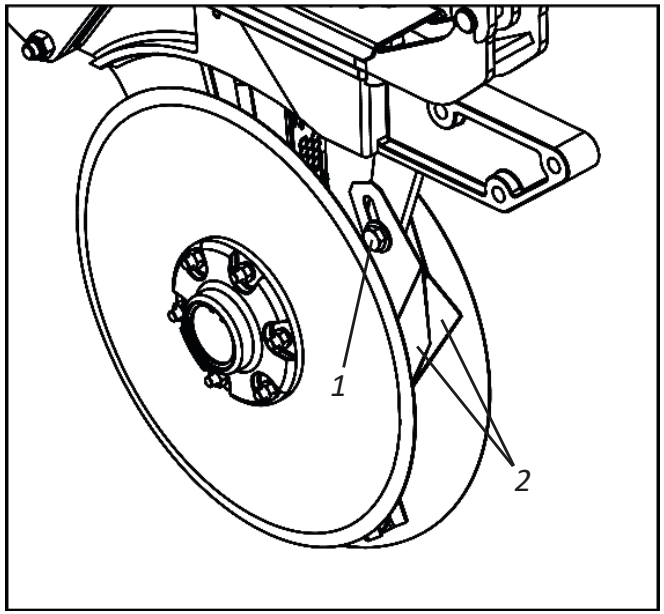
Do not make any other adjustments to the furrower spring. If you are constantly tripping, check the soil conditions, which may be harder or with a high compaction index.

▪ Adjustment of the lines

• Adjustment of the double disc wipers

The double disc features flexible, adjustable wipers to remove dirt adhering to the discs. To adjust the wipers, proceed as follows:

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



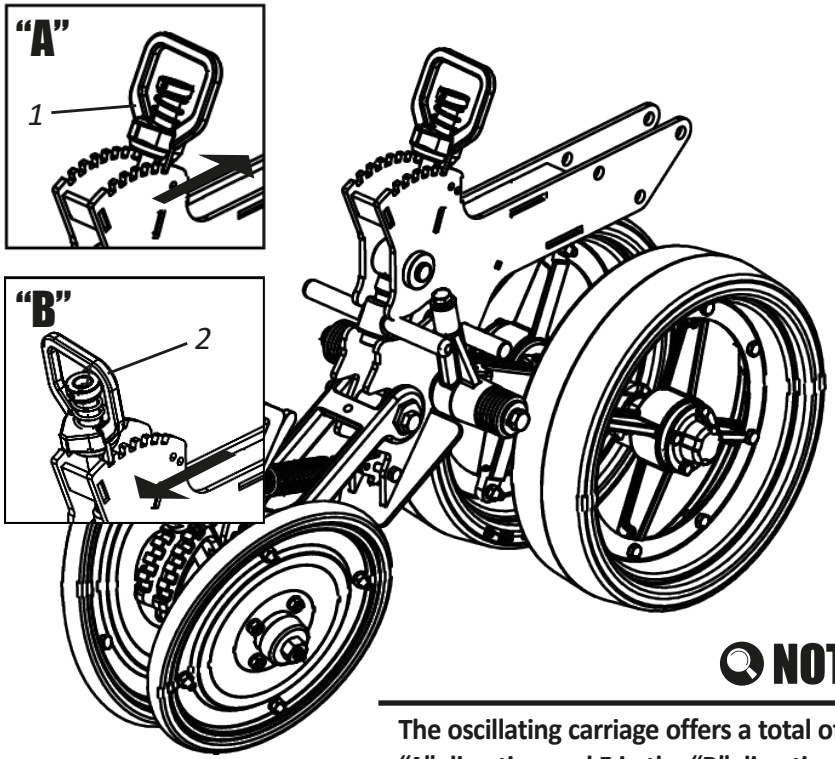
IMPORTANT

At the end of the adjustment, repeat the procedure on all lines, avoiding variation between them.

• Adjustment of the oscillating depth wheel

The limiting wheels with oscillating depth, have a single support point that allows their oscillation, if an obstacle or irregularities appears in the ground in their path they will rise to overcome it, immediately returning to the initial position without lifting the double disc from its position. The seed depth is set individually by the depth limiting wheels. For this adjustment, proceed as follows:

01 - Pull the handle (1) up, move the regulator (2) to the desired point, adjustment of the a depth wheel (3), then lower the handle (1) locking the regulator (2).



NOTE

The oscillating carriage offers a total of 11 adjustment points, 6 in the "A" direction and 5 in the "B" direction interspersed.

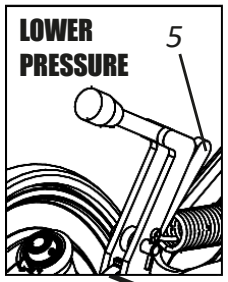
▪ Adjustment of the lines

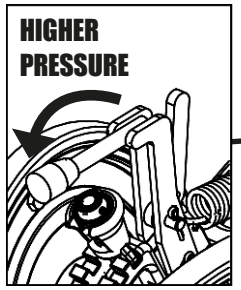
• Adjustment of the compactor wheel in "V" - Part I

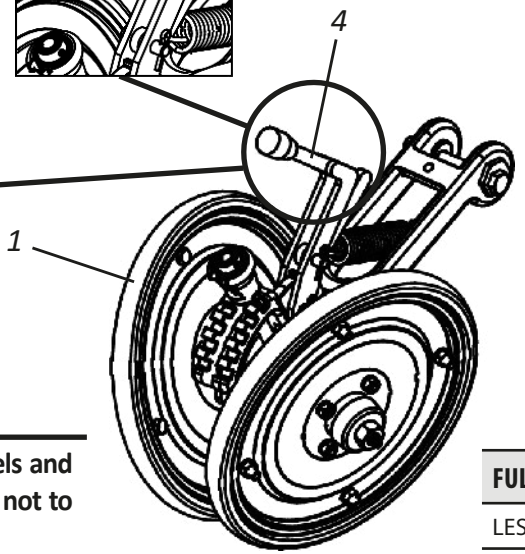
The "V" compacting wheels (1) are used to close the ridge laterally, causing the soil to be immediately placed over the seed, avoiding excess compaction and removing air pockets, facilitating germination and plant development. To adjust the greater or lesser angle of closing of the "V" compacting wheels (1), pull the knob (2) upwards, move the regulator (3) to the desired point, then lower the knob (2) locking the regulator (3). The "V" compacting wheels have 5 adjustment points.

HIGHER RESSURE:	SHIFT THE HANDLE (2) BACK, GIVING MORE PRESSURE TO THE WHEEL (1).
LOWER PRESSURE:	SHIFT THE HANDLE (2) FORWARD, GIVING LESS PRESSURE TO THE WHEEL (1).

The "V" compactor wheel (1) can also be adjusted to its pressure using the lever (4), **as shown in the figure below.**



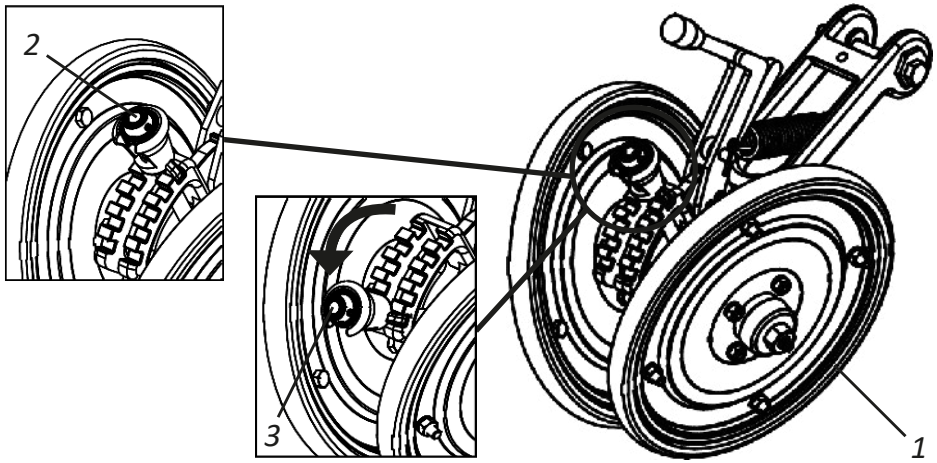




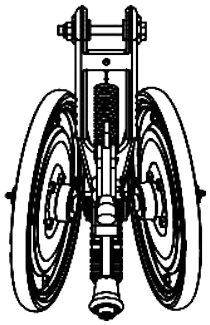
HIGHER PRESSURE:
SHIFT THE LEVER (4) BACK, GIVING MORE PRESSURE TO THE WHEEL (1).
LOWER PRESSURE:
TIGHTEN THE LEVER (5) SHIFT THE LEVER (4) FORWARD, GIVING LESS PRESSURE ON THE WHEEL (1).

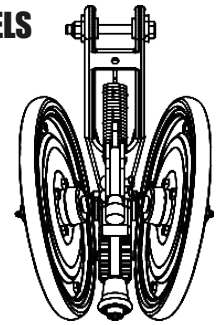
⚠ ATTENTION

Make the same adjustment for all "V" compacting wheels and consider the type of soil, seed and planting depth, so as not to affect the free emergence of the plants.



ANGLE OF "V" WHEELS





FULLY CLOSED ANGLE POSITION
LESS EARTH OVER THE SEED.

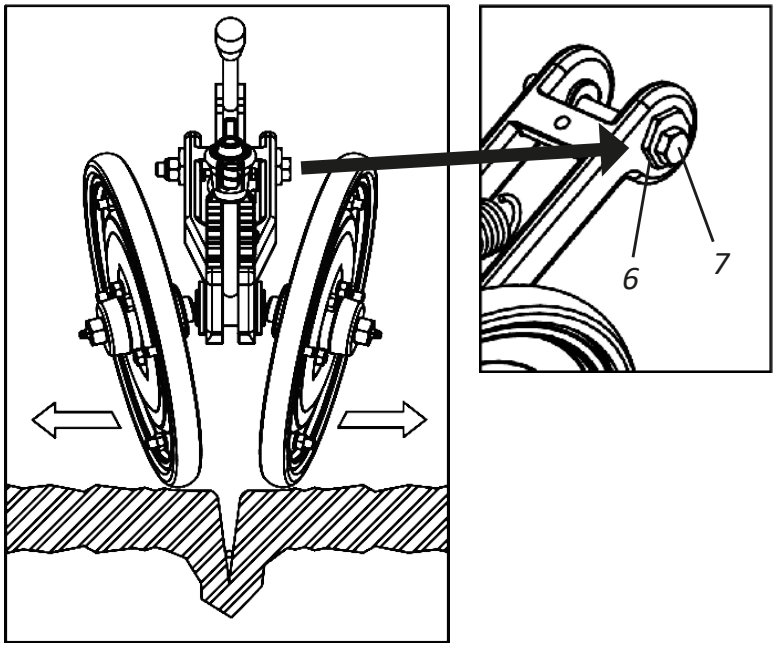
OPEN ANGLE POSITION
MORE EARTH OVER THE SEED.

▪ Adjustment of the lines

• Adjustment of the compactor wheel in "V" - Part II

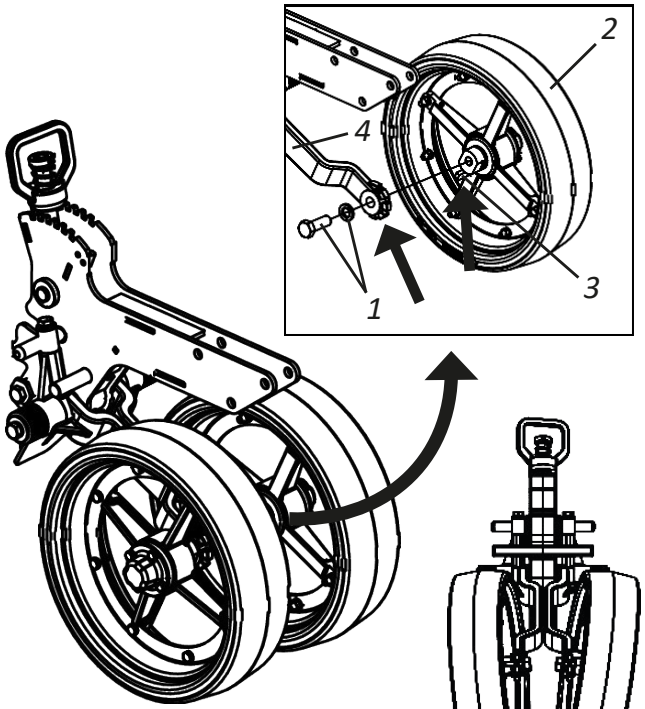
For horizontal displacement of the wheels, they were developed with eccentric bushings (5). For this adjustment, proceed as follows:

01 - Loosen the screws (7), rotate the said bushings (6), with a spanner to actuate the wheels and align them with the ridge, placing more or less soil on the side of the seed.



• Adjustment of the oscillating depth wheel angle

The angle of the depth limiting wheels (1) has the purpose of pressing the ridge causing the soil to be immediately replaced on the seed, avoiding excessive compaction, facilitating the germination and development of the plant. To obtain the adjustments on the wheels, proceed as follows:

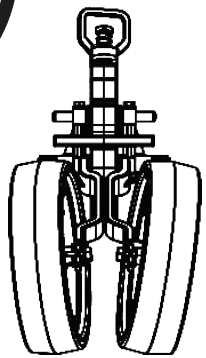


01 - Loosen the screws and washers (1), remove the wheel (2), adjust the wheel adjustment point (3) on the wheel support shaft adjustment (4), then secure the wheel (2) again with the washers and screws (1).

⚠ ATTENTION

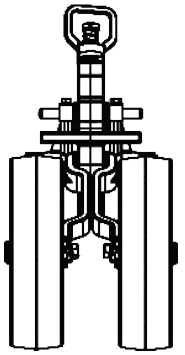
Do the same procedure for the other wheel support (4) and for all wheels with oscillating depth.

WHEEL ANGLE



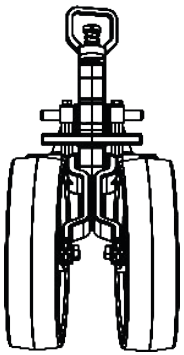
FULLY CLOSED ANGLE POSITION

LESS EARTH OVER THE SEED.



PARALLEL POSITION

FOR DEPTH CONTROL ONLY.



OPEN ANGLE POSITION

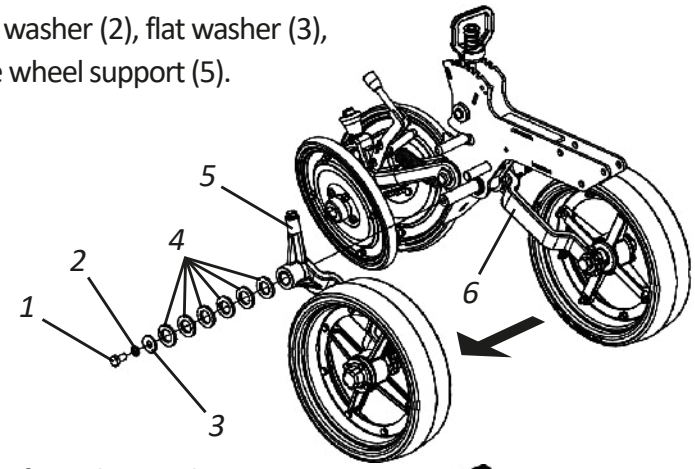
MORE EARTH OVER THE SEED.

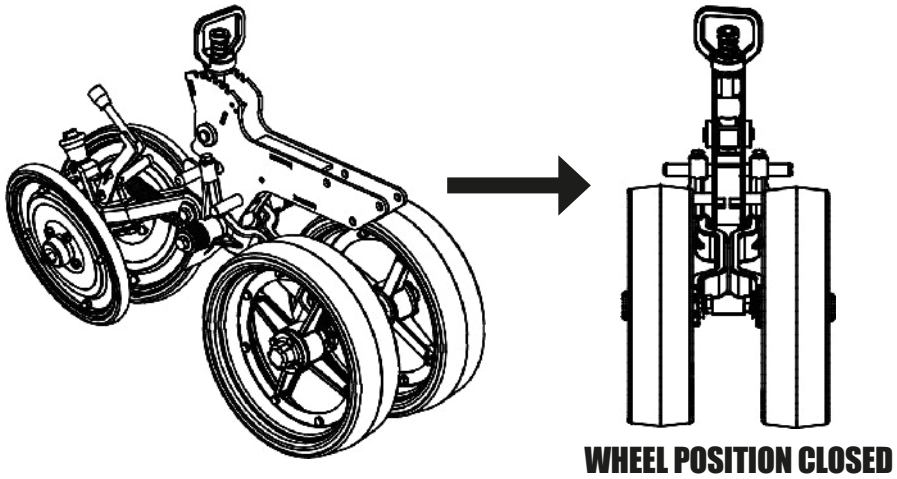
▪ Adjustment of the lines

• Opening adjustment of the oscillating depth wheel

The oscillating depth wheels have an opening and closing system to better adapt to terrains with dense stubble or with higher and lower humidity. The oscillating depth wheels leave the factory in the closed position. To open the wheels with oscillating depth, proceed as follows:

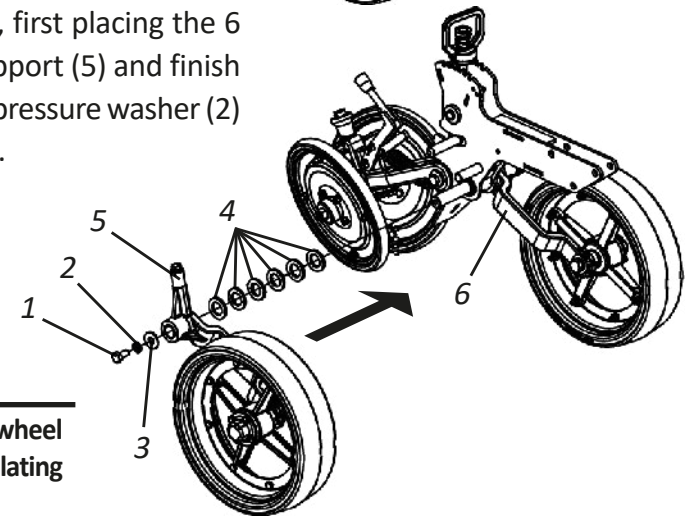
01 - Loosen the screw (1), pressure washer (2), flat washer (3), remove the 6 shims (4) and the wheel support (5).

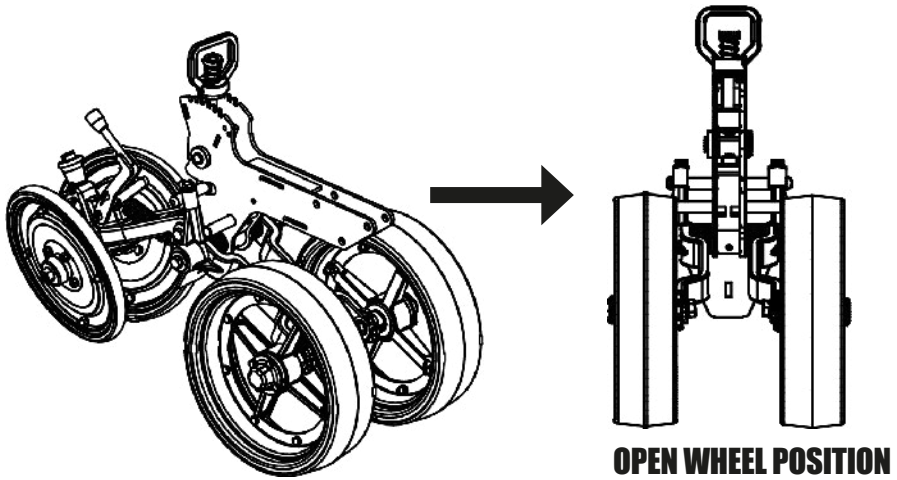




WHEEL POSITION CLOSED

02 - Then, do the reverse process, first placing the 6 blocks (4), then the wheel support (5) and finish by placing the flat washer (3), pressure washer (2) and the screw (1) tightening it.





OPEN WHEEL POSITION

NOTE

Do the same procedure for the other wheel support (6) and for all wheels with oscillating depth.

▪ Adjustment of the lines

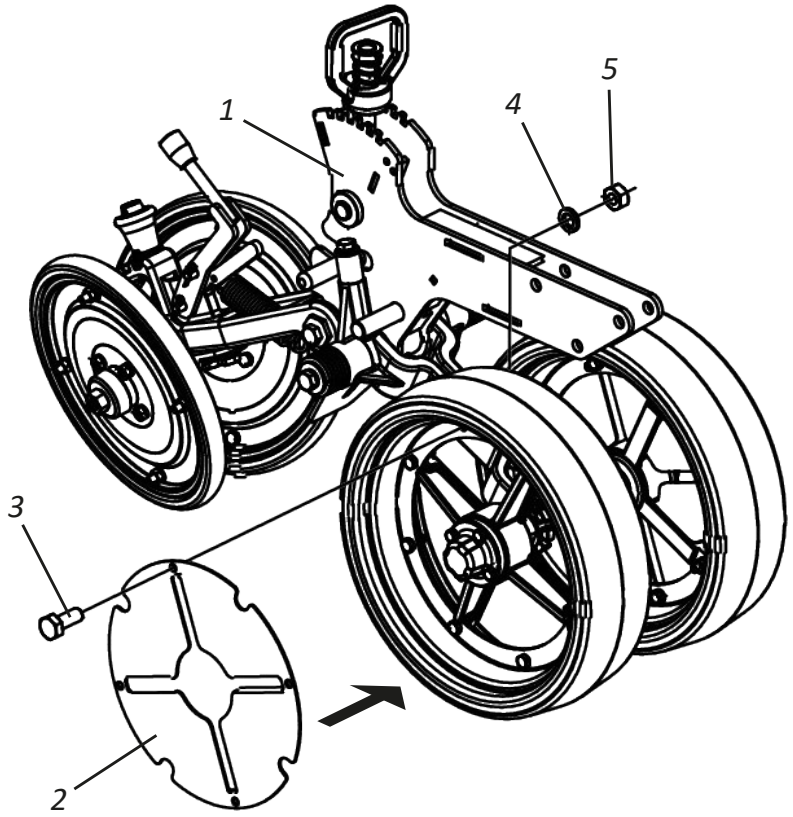
• Oscillating carriage with protection ring (Optional)

The planting lines of the **SPE TOP LINE FLEX AIR** seeder can be purchased with an oscillating trolley with a protection ring (1). The oscillating carriage with protection ring was developed for situations of direct planting in which the corn cane was harvested in high cut, preventing it from entering the wheel rims during planting, locking it.

If you have purchased the **SPE TOP LINE FLEX AIR** seeder, with oscillating carriages without a protection ring, you can only purchase the protection ring (2) to fasten it to the wheels. To install the protection ring (2), proceed as follows:

01 - Loosen the screws (3), lock washers (4) and nuts (5).

02 - Then, put the protection cover (2) fastening it with the screws (3), pressure washers (4) and nuts (5).



⚠ ATTENTION **If you only buy the protection ring (2), secure it on all the oscillating carriages (1) of the seeder.**

▪ Adjustment of the lines

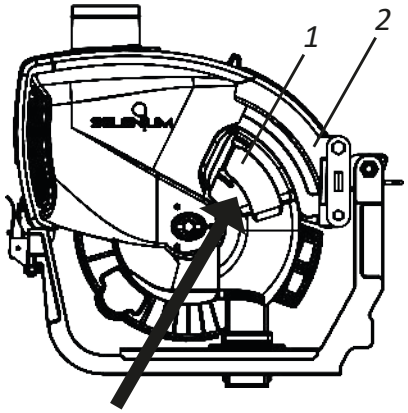
• Vacuum pressure on SELENIUM dispensers

IMPORTANT

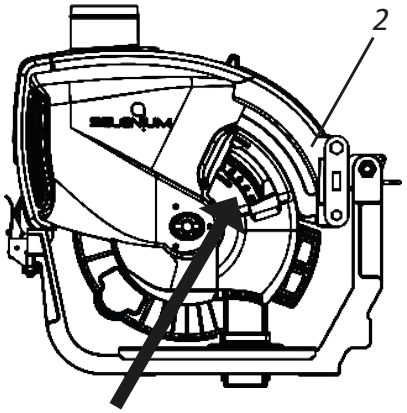
To check the vacuum pressure on the SELENIUM seed dispensers, first put the seeder in working condition, that is, the SELENIUM dispensers must be loaded with seeds; then activate the turbine, move the seeder until all the holes in the seed discs are filled.Then do the procedure below.

To check the vacuum pressure on SELENIUM dispensers, proceed as follows:

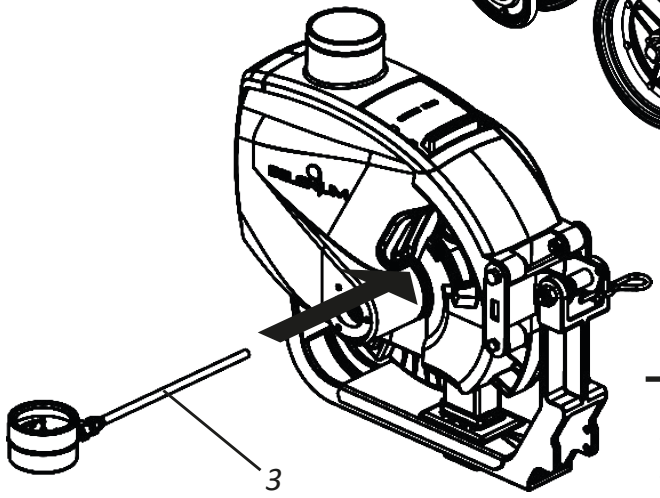
01 - Start the turbine at working speed.
02 - Then, open the lid (1) of the SELENIUM dispenser (2).
03 - Then, take the vacuum gauge (3), attach the end of its hose to one of the holes in theSELENIUM dispenser disc (2) and check the vacuum pressure, which must be the same as the working pressure, with the possibility of a minimal variation.
04 - After checking the vacuum pressure, disconnect the vacuum gauge hose (3) from the disc and close the lid (1) of the SELENIUM dispenser (2).

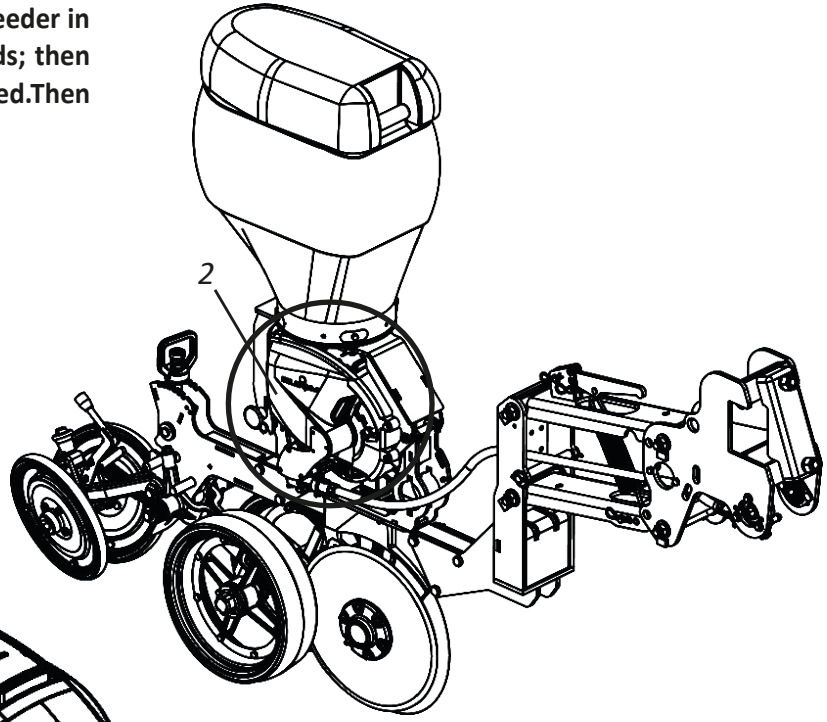


LID CLOSED



LID OPEN





ATTENTION

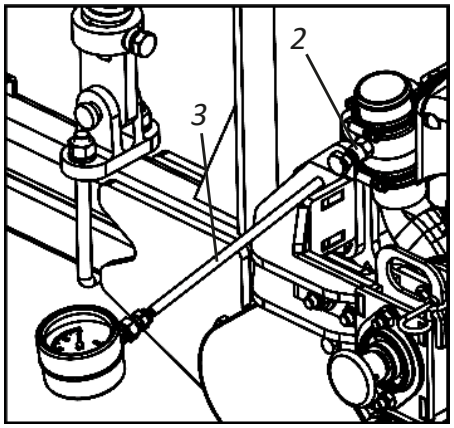
If you need to regulate the vacuum pressure, adjust the opening or closing of the turbine gate according to the instructions on page 37.

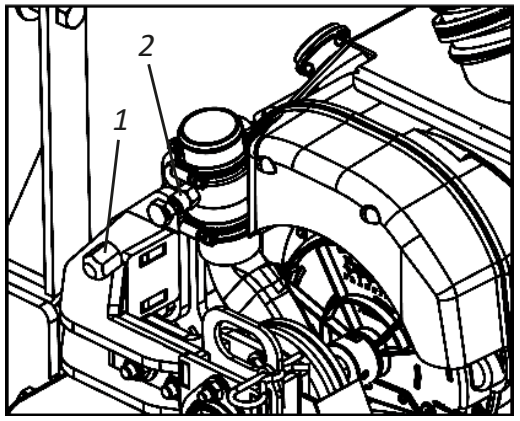
▪ Adjustment of the lines

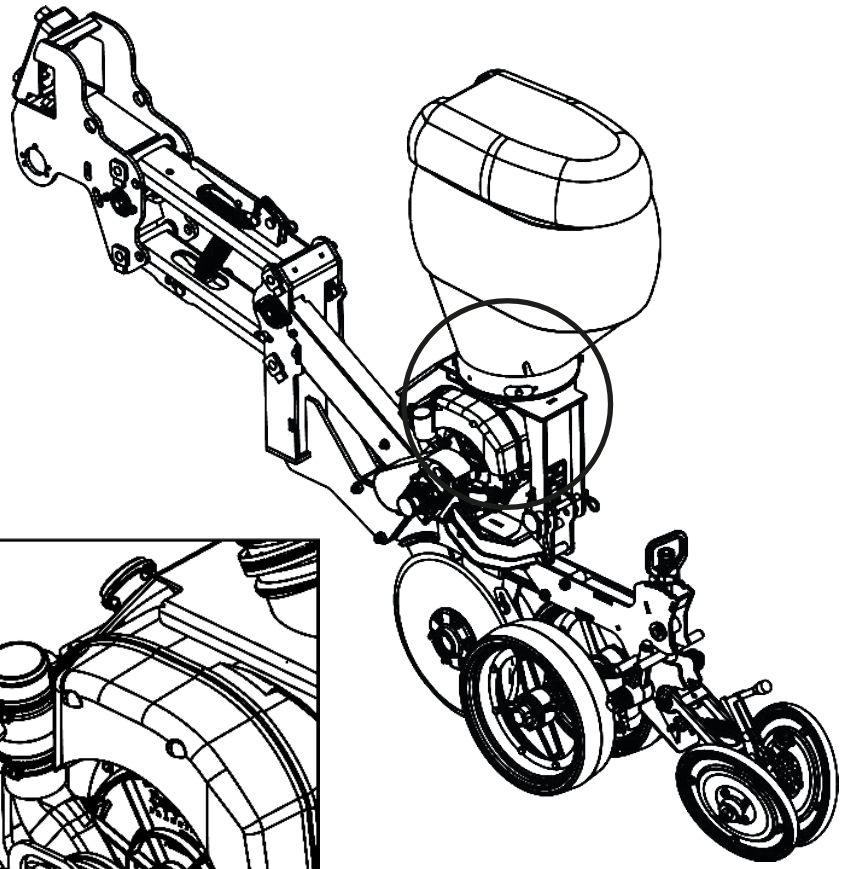
• Vacuum pressure in VSET2 dispensers

The **SPE TOP LINE FLEX AIR** has on the last line on the left or right side (looking from behind the seeder) a nipple to check the vacuum level in the dispenser every 20 hours of work. To check the vacuum level in the dispenser, proceed as follows:

01 - Remove the cap (1) from the nipple (2).
02 - Then, start the turbine at working speed.
03 - Then, take the vacuum gauge (3), attach the end of its hose to the nipple(2) and check the vacuum level, which must be the same as the working one, with the possibility of a minimal variation.
04 - After checking the vacuum level, reattach the cap (1) to the nipple (2).







⚠ ATTENTION **If you need to adjust the vacuum pressure, adjust the opening or closing of the turbine gate according to the instructions on page 37.**

▪ Operations

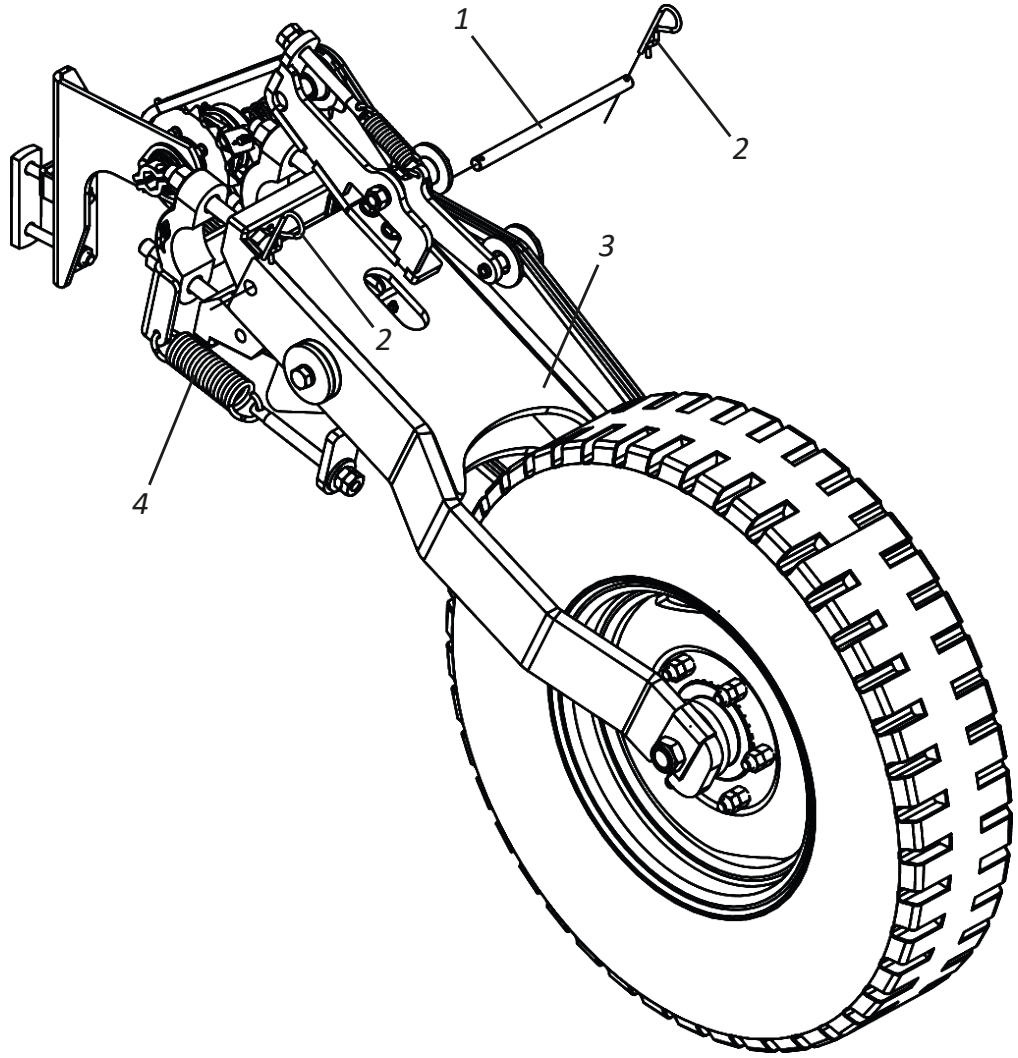
• Wheels mounting and articulating system

The mounting and swivel system of the tires makes them free from the pressure of the pantographic system springs on the ground, thus allowing them to oscillate and follow the unevenness of the terrain, so that the distribution of fertilizer and seed is not interrupted.

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

02 - For no-till, the wheels operate freely and, if necessary, add 3/4" of water to the tires.

03 - The wheelset (3) is equipped with traction springs (4) for greater grip to the ground. Do not operate the seeder without it.



▪ Operations

• Operation recommendations

Preparing the **SPE TOP LINE FLEX AIR** and the tractor will allow you to save time and have better results in field work. The following suggestions may be helpful to you.

01 - After the first day of work with the **SPE TOP LINE FLEX AIR**, retighten all screws and nuts. Check the condition of the pins and locks.
02 - Do not maneuver or reverse with the lines lowered to the ground.
03 - Observe lubrication intervals.
04 - When filling the tanks make sure that there are no objects inside them, such as nuts, bolts, etc. Always use seeds free of impurities.
05 - Always observe the functioning of seed dispensing mechanisms and also the regulations established at the beginning of planting.
06 - Keep the **SPE TOP LINE FLEX AIR** always leveled, the tractor drawbar must remain fixed and the working speed must remain constant.
07 - Always check seed depth and press wheel pressure.
08 - Note the position of the fertilizer in relation to the seed in the soil.
09 - Do not make sharp curves with the **SPE TOP LINE FLEX AIR** while working, especially in direct planting. Line components may be damaged.
10 - Do not partially activate the hydraulic cylinders. Always the activation both to raise and to lower the SPE TOP LINE FLEX AIR must be completely.
11 - Do not disconnect any hose without first relieving circuit pressure. To do this, operate the control levers a few times with the engine off.
12 - After hitching and leveling, the next adjustments will be made directly in the work field, analyzing the terrain in its texture, humidity and the types of operations to be carried out with the **SPE TOP LINE FLEX AIR.**
13 - Observe the working and transport speeds specified on page 12. We do not recommend exceeding speeds to maintain service efficiency and avoid possible damage to the **SPE TOP LINE FLEX AIR.**
14 - When carrying out any check or maintenance on the **SPE TOP LINE FLEX AIR**, lower it to the ground and turn off the tractor engine.
15 - The **SPE TOP LINE FLEX AIR** has several adjustments, but only local conditions can determine the best adjustment for them.
16 - Right and left side indications are made by looking at the **SPE TOP LINE FLEX AIR** from behind.
17 - Only fuel the **SPE TOP LINE FLEX AIR** at the field of work.
18 - Do not transport or work with excess loads on the **SPE TOP LINE FLEX AIR.**
19 - The **SPE TOP LINE FLEX AIR** operates more efficiently in the range of 5 to 6 km/h.

If in doubt, never operate or handle the SPE TOP LINE FLEX AIR, contact After Sales. Telephone: 0800-152577/ Email: posvenda@baldan.com.br

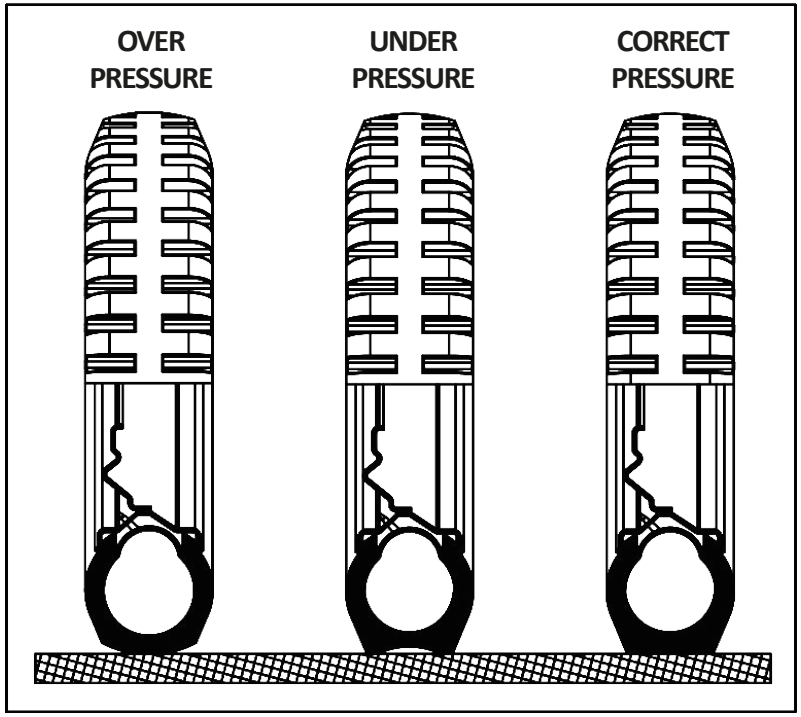
▪ Maintenance

The **SPE TOP LINE FLEX AIR** was developed to give you maximum performance under terrain conditions. Experience has shown that periodic maintenance of certain parts of the **SPE TOP LINE FLEX AIR** is the best way to help you avoid problems, so we suggest making those checks.

• Tire pressure

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

TIRES 700 X 16 10 LONAS



USE: 70 LBS/POL²

⚠ ATTENTION

Never weld the tire mounted wheel, the heat can cause the air pressure to build up and cause the tire to explode.

When inflating the tire, position yourself beside the tire, never in front of it.

To inflate the tire, always use a containment device (inflation cage).

Mount the tires with suitable equipment. The service must be carried out only by persons qualified for the work.

❗ IMPORTANT

When calibrating the tires, do not exceed the recommended calibration.

🔍 NOTE

The pressure of the tractor tires should be made according to the manufacturer's recommendations.

▪ Maintenance

• Lubrication

Lubrication is essential for good performance and greater durability of the moving parts of the **SPE TOP LINE FLEX AIR**, helping to save in maintenance costs.

Before starting the operation, carefully lubricate all grease fittings, always observing the lubrication intervals on the next page. Ensure the quality of the lubricant, regarding its efficiency and purity, avoiding using products contaminated by water, earth and other agents.

• Table of greases and equivalents

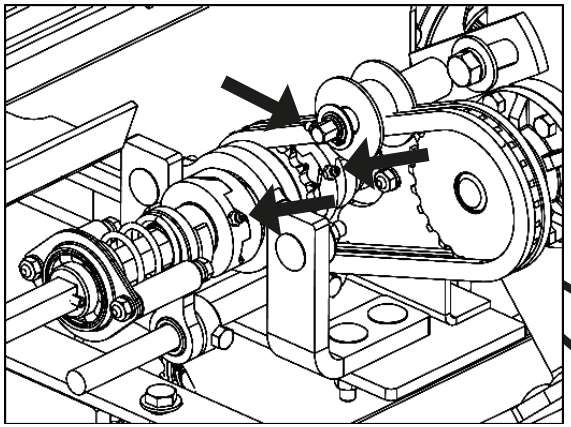
Manufacturer	Type of recommended grease
Petrobrás	Lubrax GMA-2
Atlantic	Litholine MP 2
Ipiranga	Ipiflex 2
Castrol	LM 2
Mobil	Grease MP
Texaco	Marfak 2
Shell	Alvania EP 2
Esso	Multi H
Bardahl	Maxlub APG-2EP
Valvoline	Palladium MP-2
Petronas	Tutela Jota MP 2 EP
	Tutela Alfa 2K
	Tutela KP 2K

⚠ ATTENTION

For manufacturers and/or equivalent brands not listed in the table, check the manufacturer's technical manual.

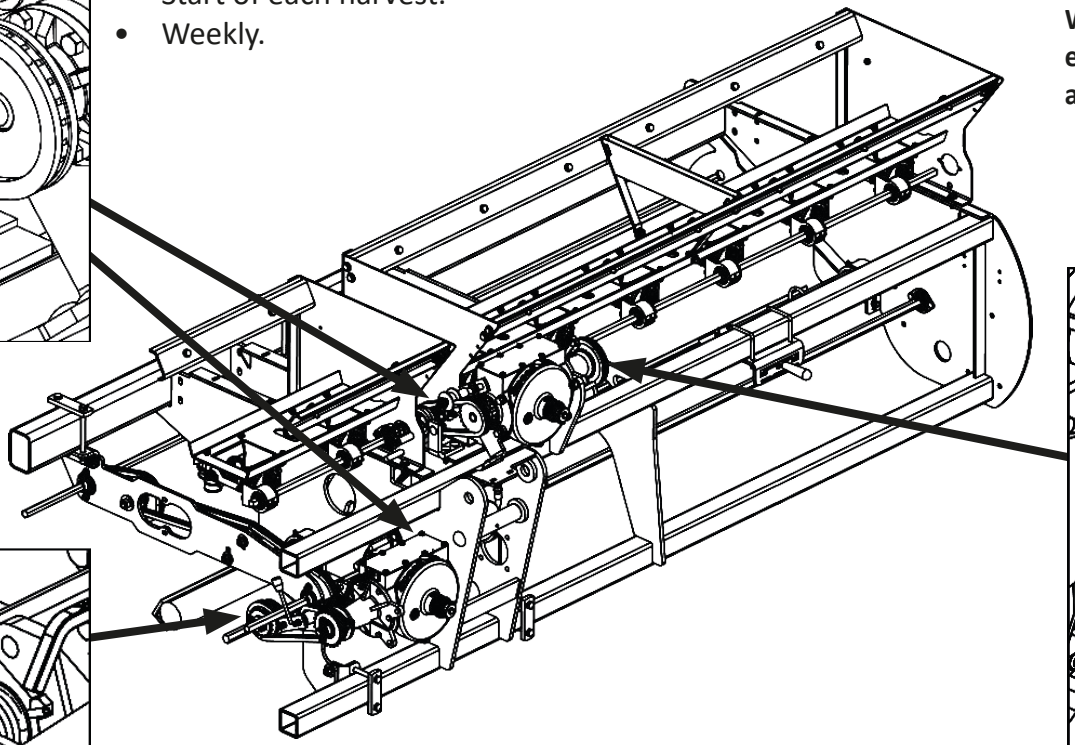
▪ Maintenance

• Lubrication - Transmissions (Front SPE)



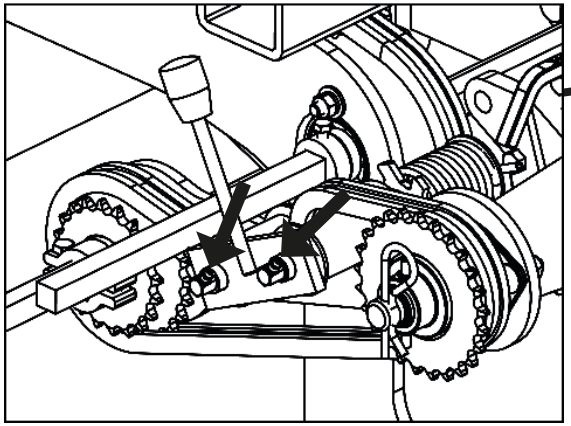
FREQUÊNCIA DE LUBRIFICAÇÃO:

- Start of each harvest.
- Weekly.



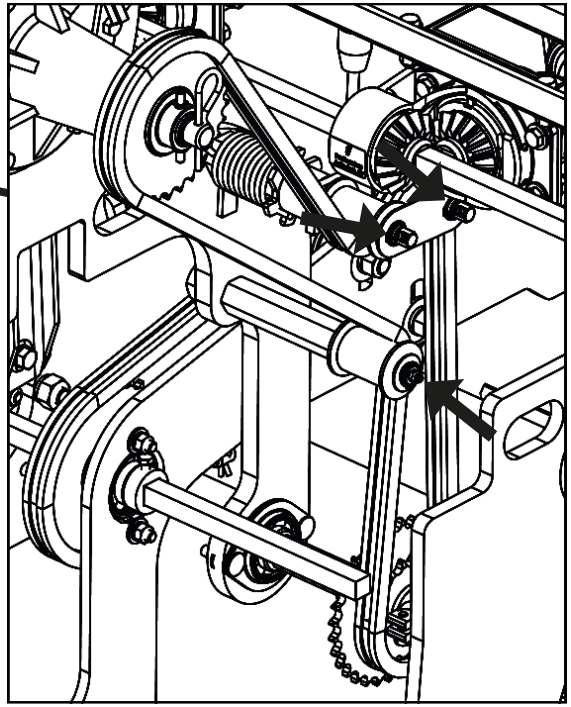
⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.



LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.

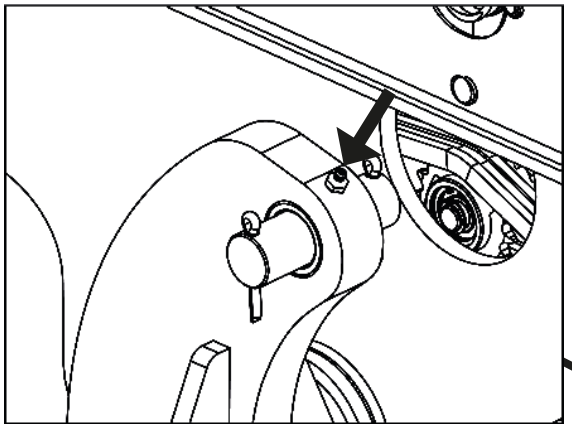


LUBRICATION FREQUENCY:

- Start of each harvest
- Weekly.

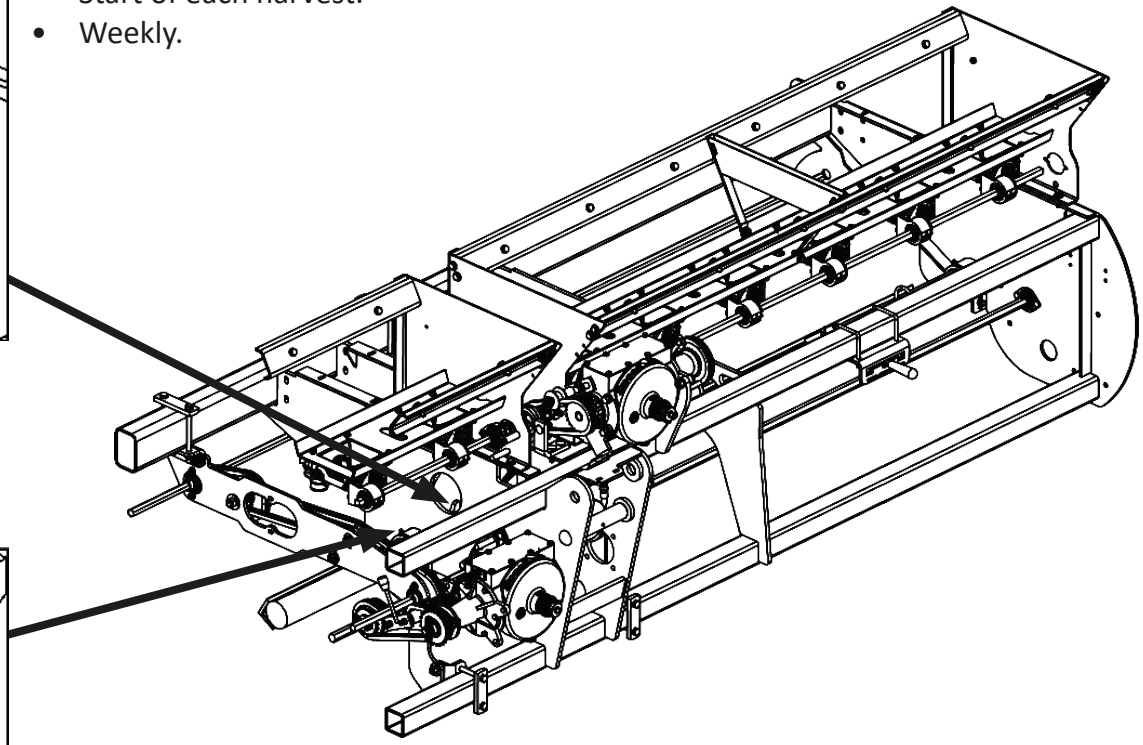
▪ Maintenance

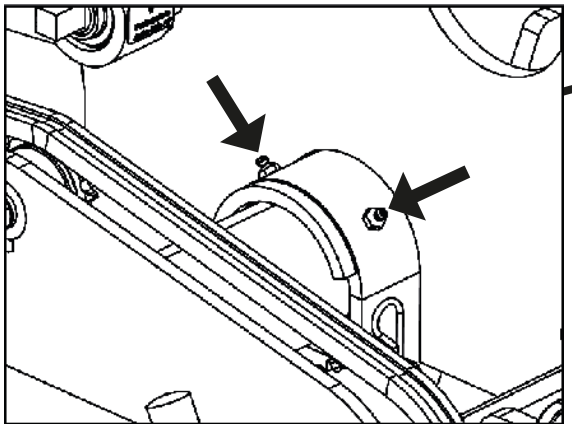
• Lubrication - Shafts



LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.





LUBRICATION FREQUENCY:

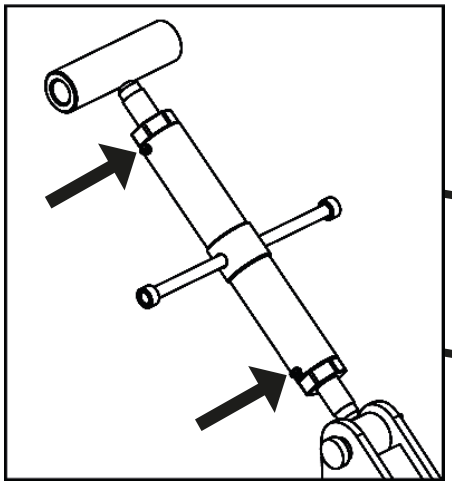
- Start of each harvest.
- Weekly.

⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Introduce a sufficient amount.

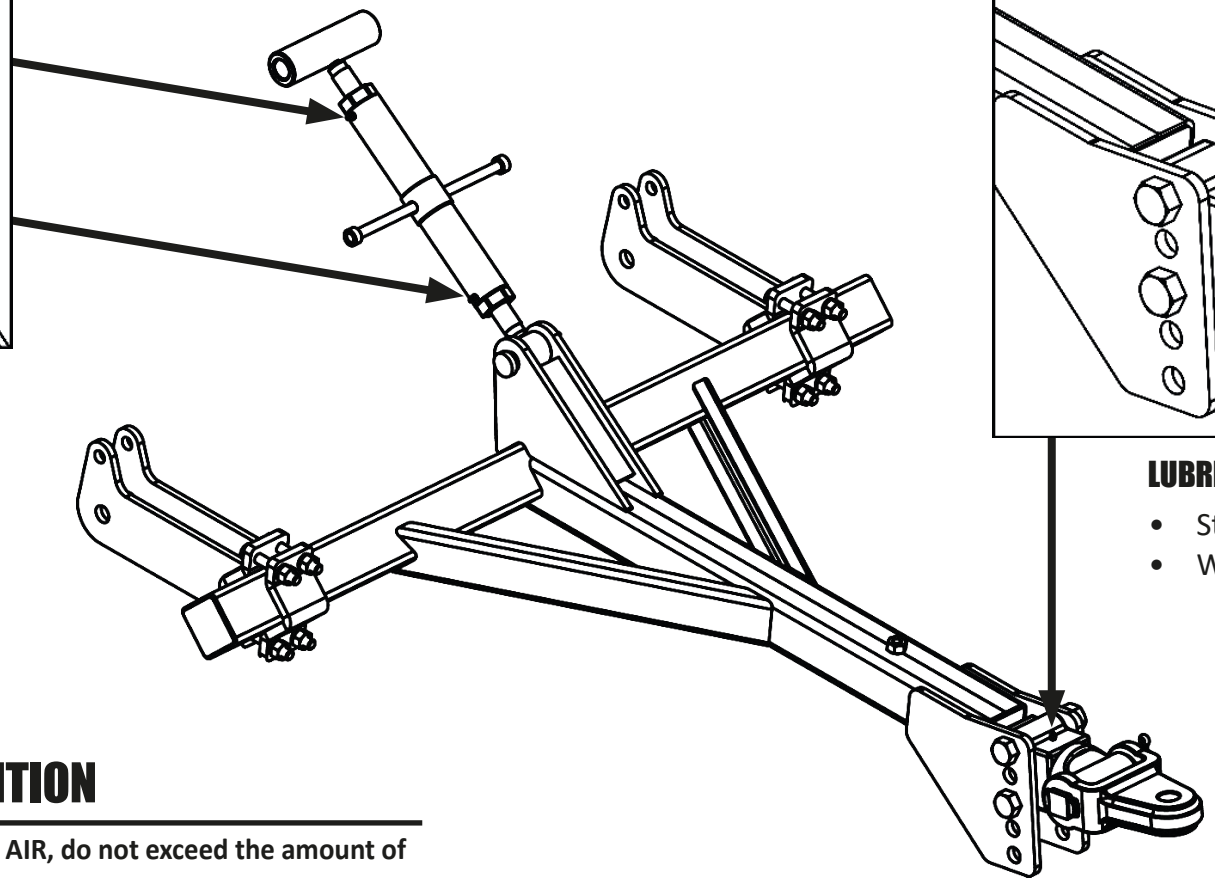
▪ Maintenance

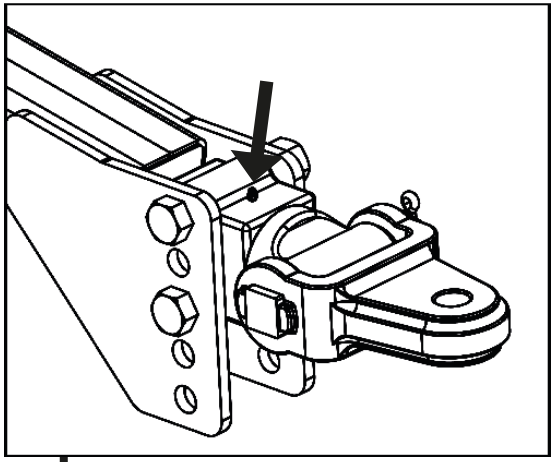
• Lubrication - Hitch header



LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.





LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.

⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.

▪ Maintenance

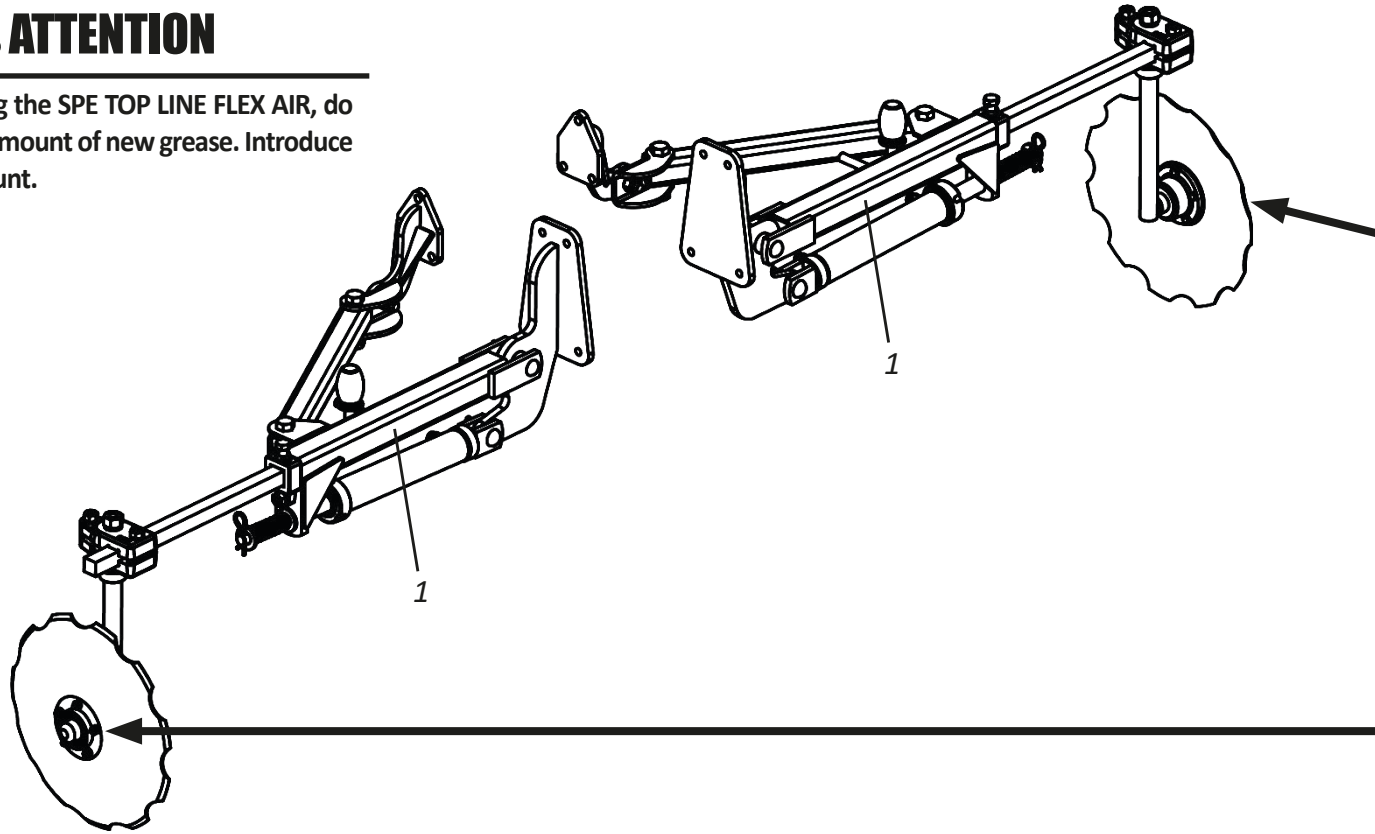
• Lubrication - Line marker

To lubricate the hub of the line markers (1), proceed as follows:

01 - Remove the retaining ring (2) and the hub cap (3) from the hub (4).
02 - Then, check the bearings if there is any gap, adjust them through the castle nut (5).
03 - Insert new grease into the hubcap (3), replace it in the hub (4) fastening it with the retaining ring (2).

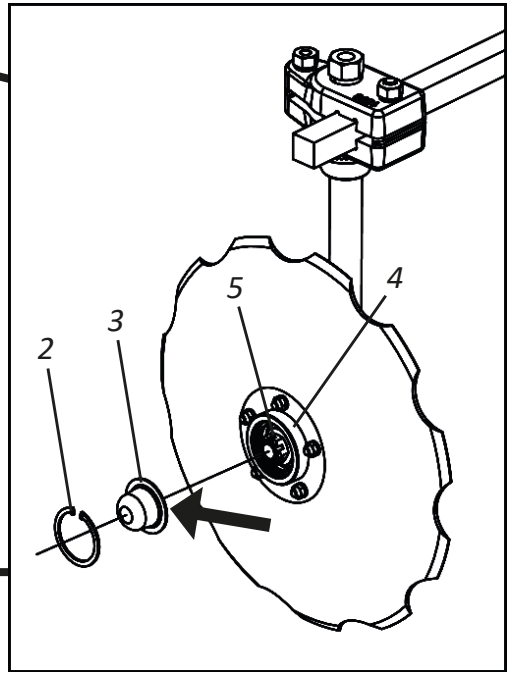
⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Introduce a sufficient amount.



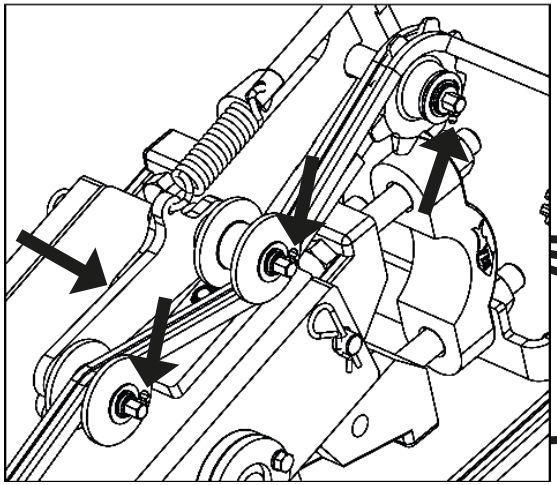
LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.



▪ Maintenance

• Lubrication - Wheelsets

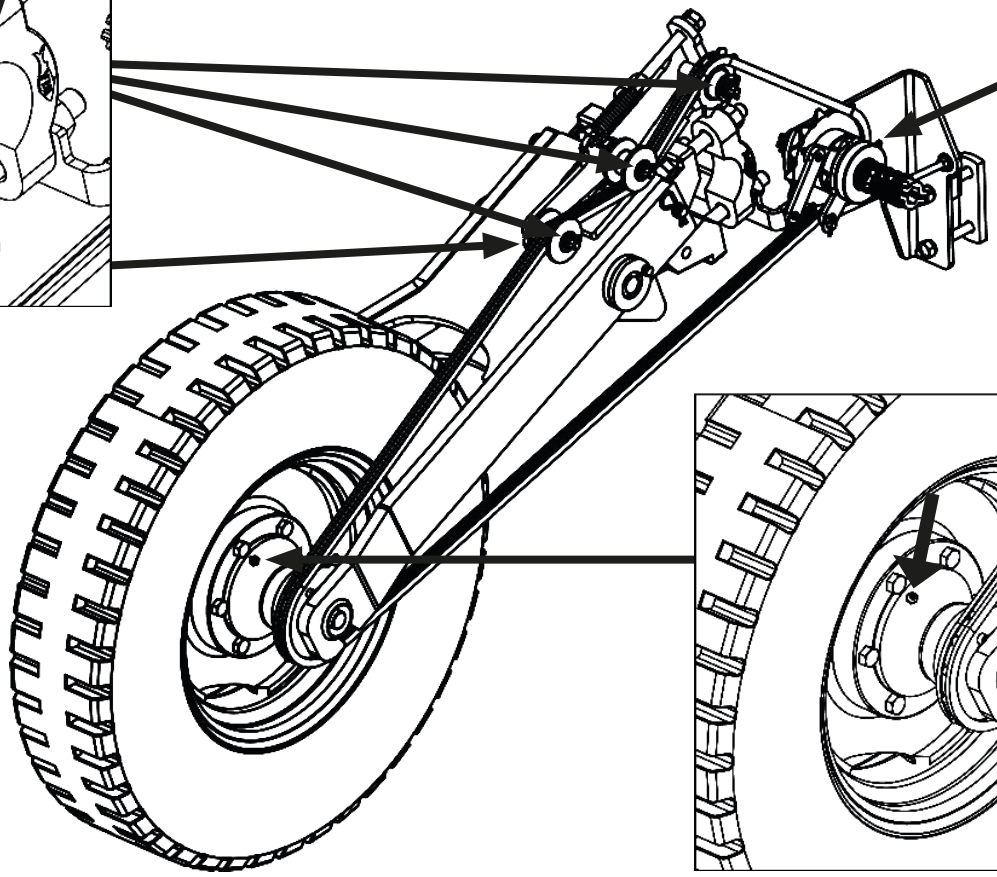


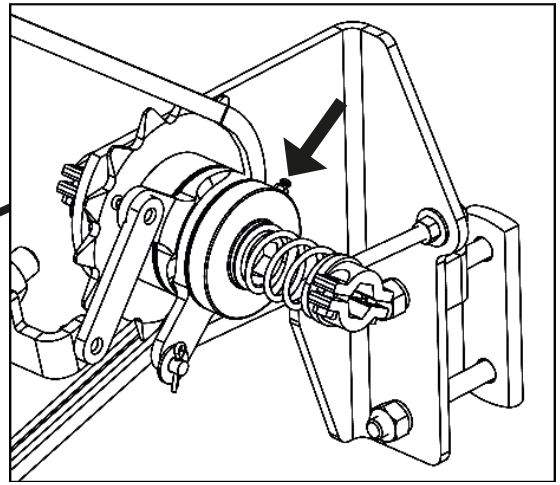
LUBRICATION FREQUENCY:

- Every 60 working hours.

⚠ ATTENTION

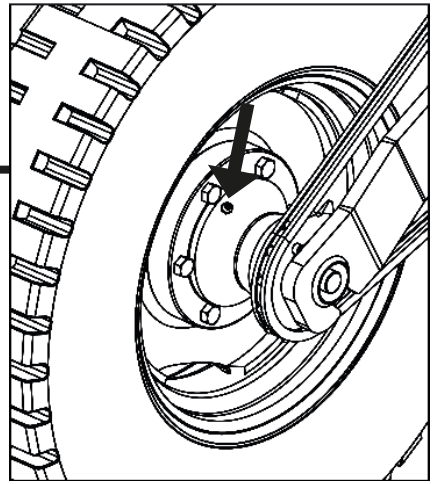
When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Introduce a sufficient amount.





LUBRICATION FREQUENCY:

- Every 60 working hours.



LUBRICATION FREQUENCY:

- Start of each harvest.

▪ Maintenance

• Lubrication - Seed lines (SELENIUM)

IMPORTANT

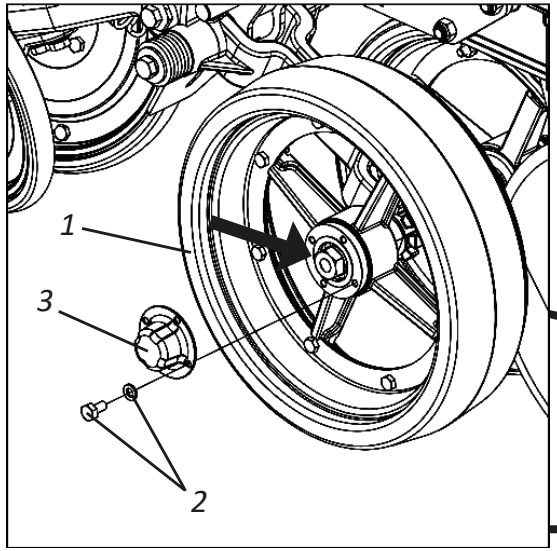
Before opening the hub (3), clean it externally.

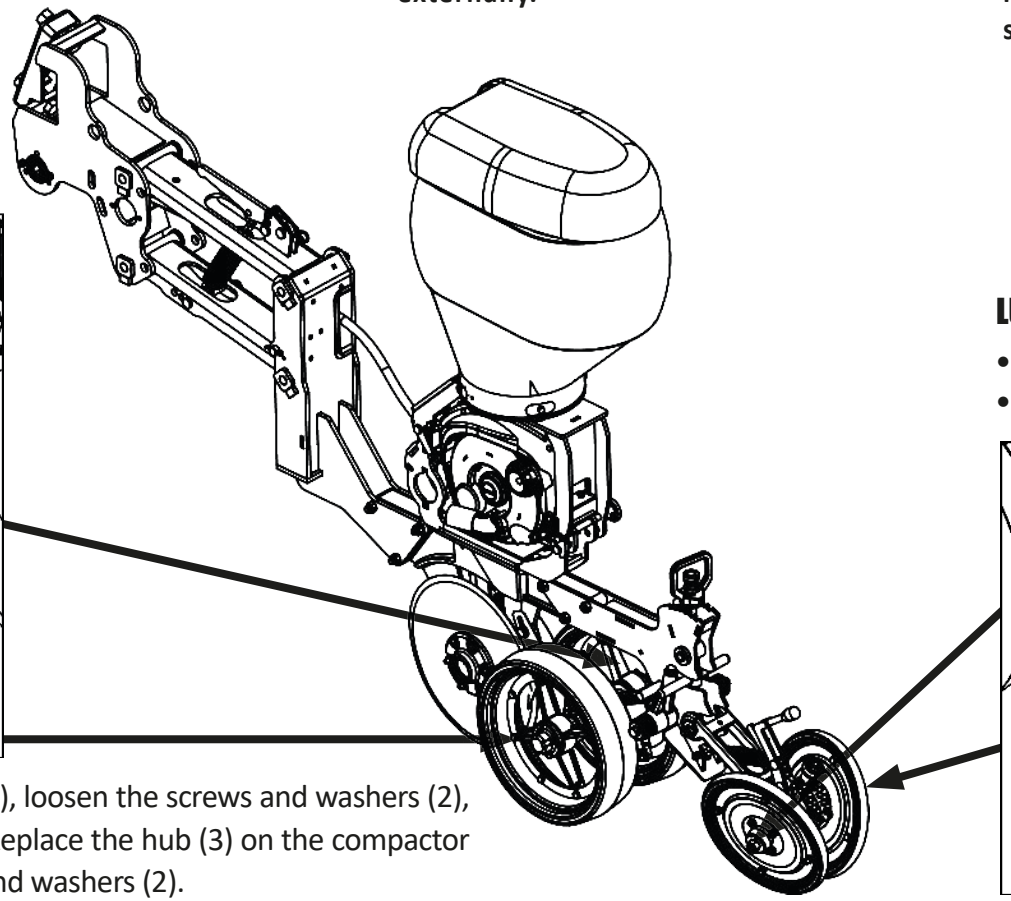
ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.

LUBRICATION FREQUENCY:

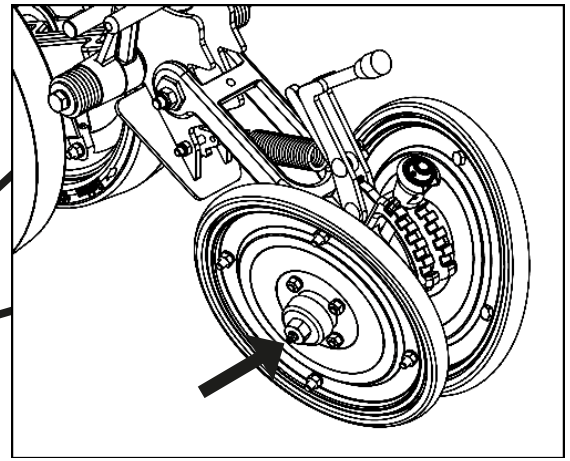
- Every 200 working hours.





LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.



To lubricate the compacting wheels (1), loosen the screws and washers (2), remove the cap (3) and add new grease. Replace the hub (3) on the compactor wheels (1) and secure it with the screws and washers (2).

▪ Maintenance

• Lubrication - Seed lines (VSET2)

IMPORTANT

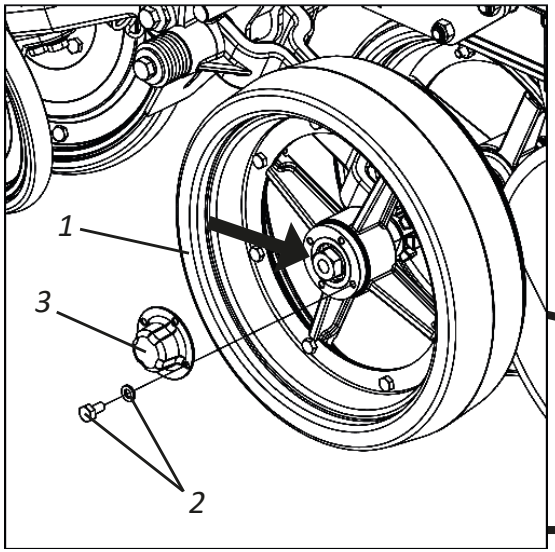
Before opening the hub (3), clean it externally.

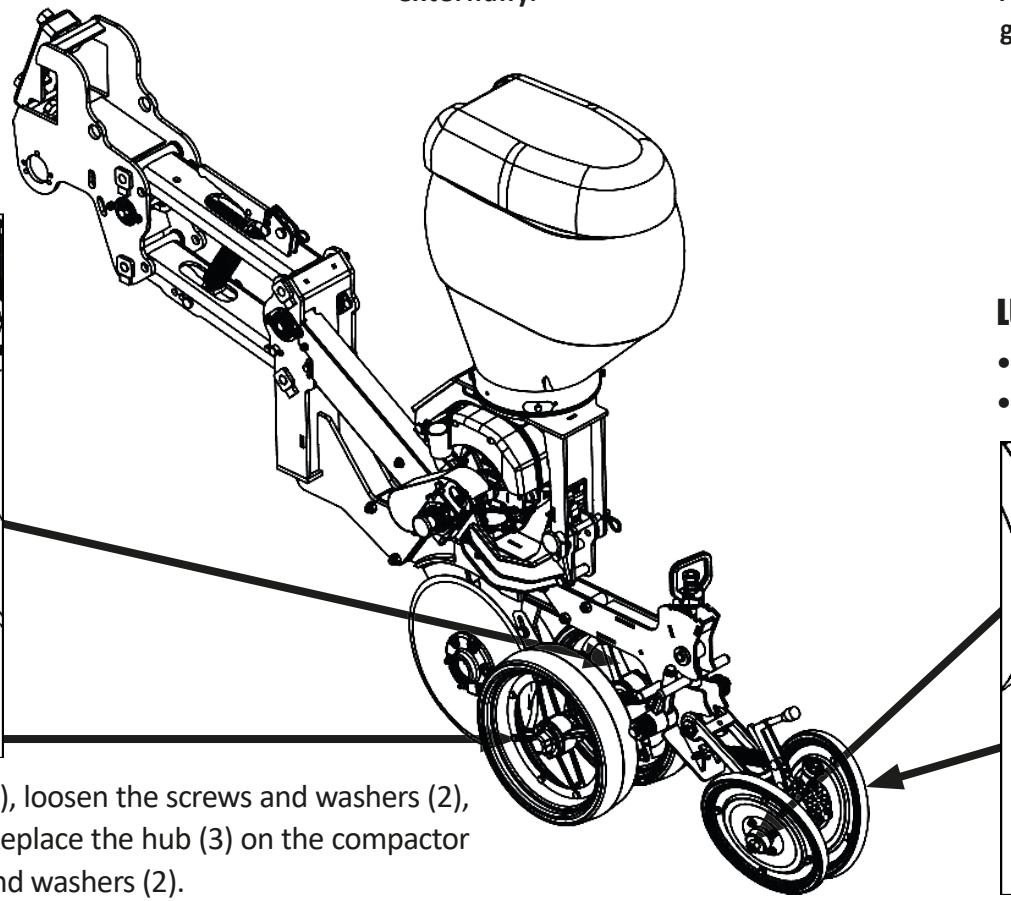
ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.

LUBRICATION FREQUENCY

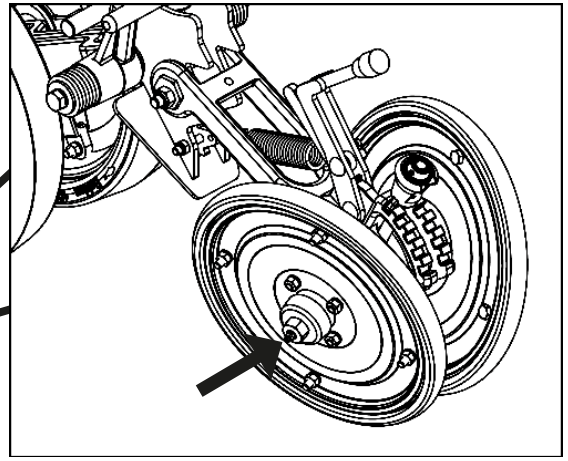
- Every 200 working hours.





LUBRICATION FREQUENCY:

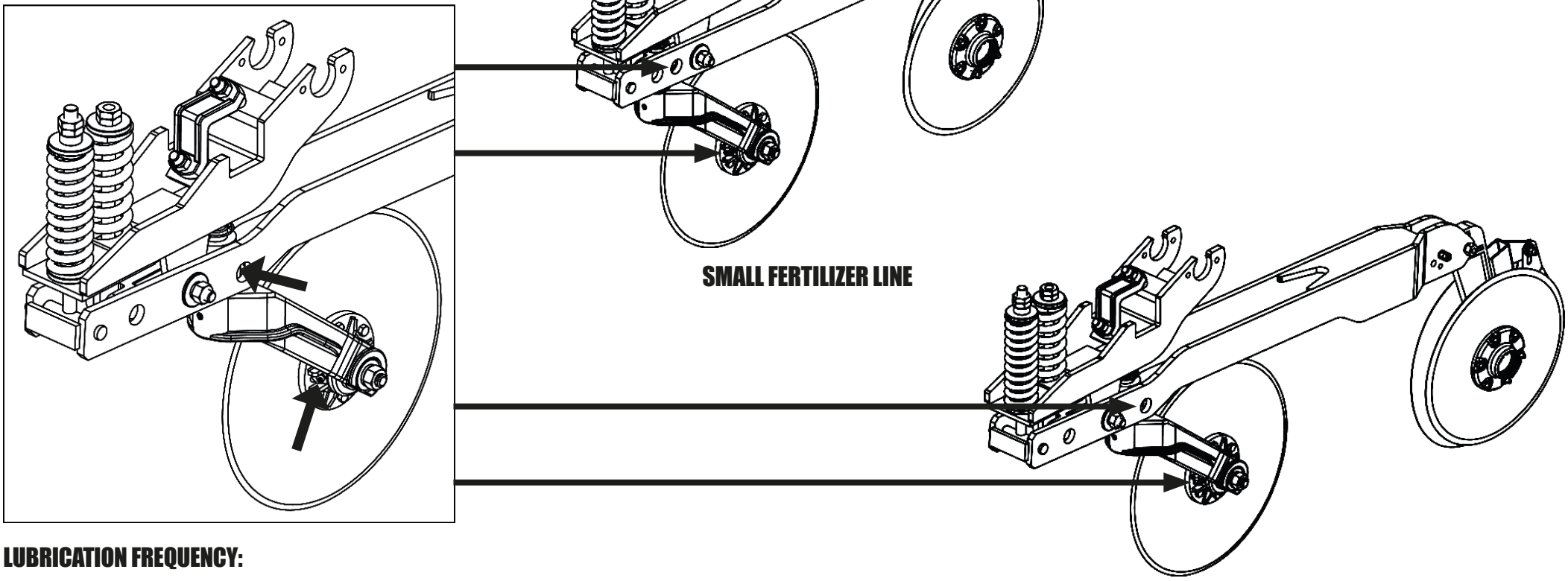
- Start of each harvest.
- Weekly.



To lubricate the compacting wheels (1), loosen the screws and washers (2), remove the cap (3) and add new grease. Replace the hub (3) on the compactor wheels (1) and secure it with the screws and washers (2).

▪ Maintenance

• Lubrication - Fertilizer lines



⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.

LUBRICATION FREQUENCY:

- Start of each harvest.
- Weekly.

▪ Maintenance

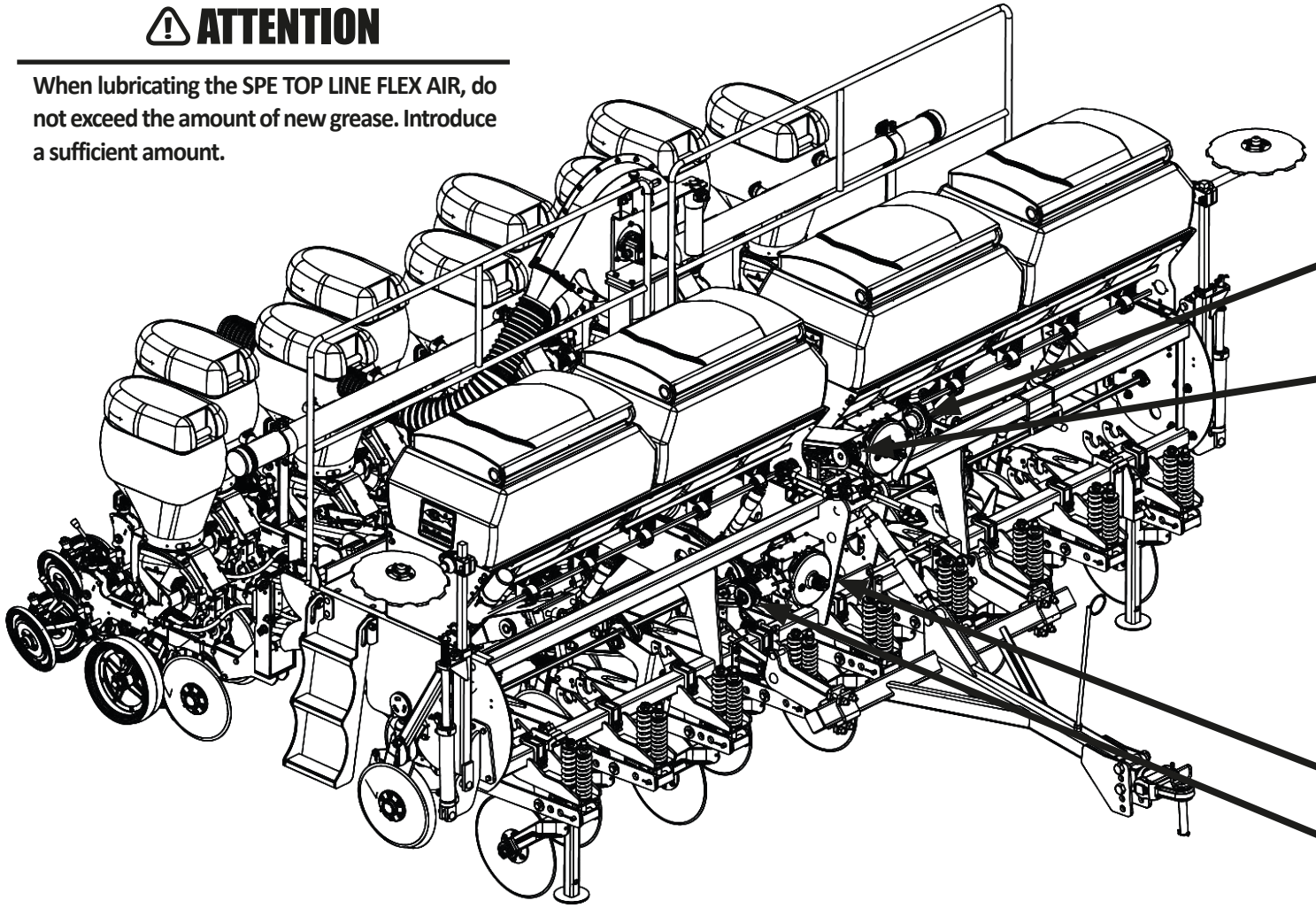
• Lubrication - Fertilizer and seed chains

⚠ ATTENTION

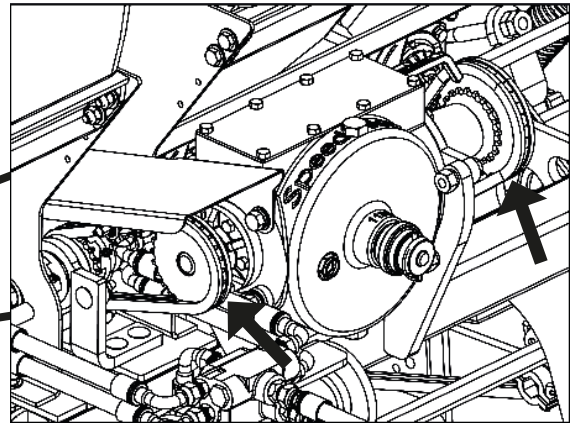
When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Introduce a sufficient amount.

LUBRICATION FREQUENCY:

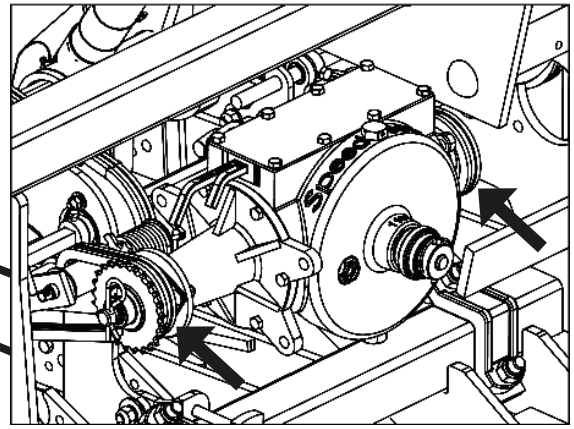
At the end of each season, remove the fertilizer and seed chains and keep them bathed in oil until the next season.



FERTILIZER CHAINS



SEED CHAINS

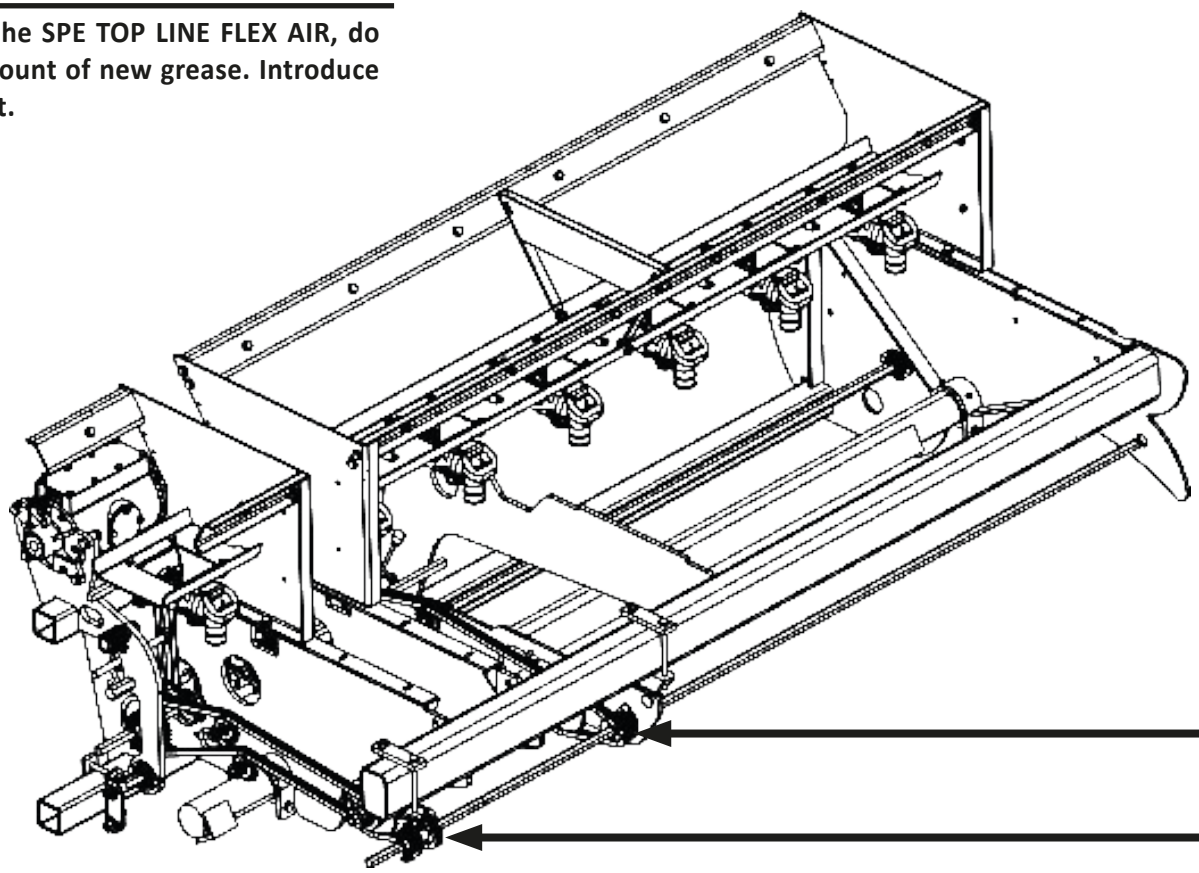


▪ Maintenance

• Lubrication - Internal transmission chains

⚠ ATTENTION

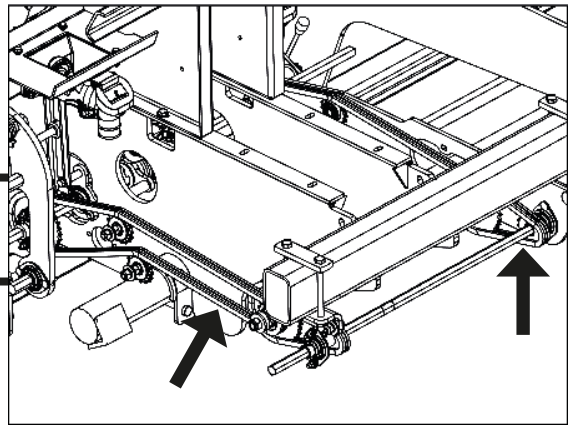
When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Introduce a sufficient amount.



LUBRICATION FREQUENCY:

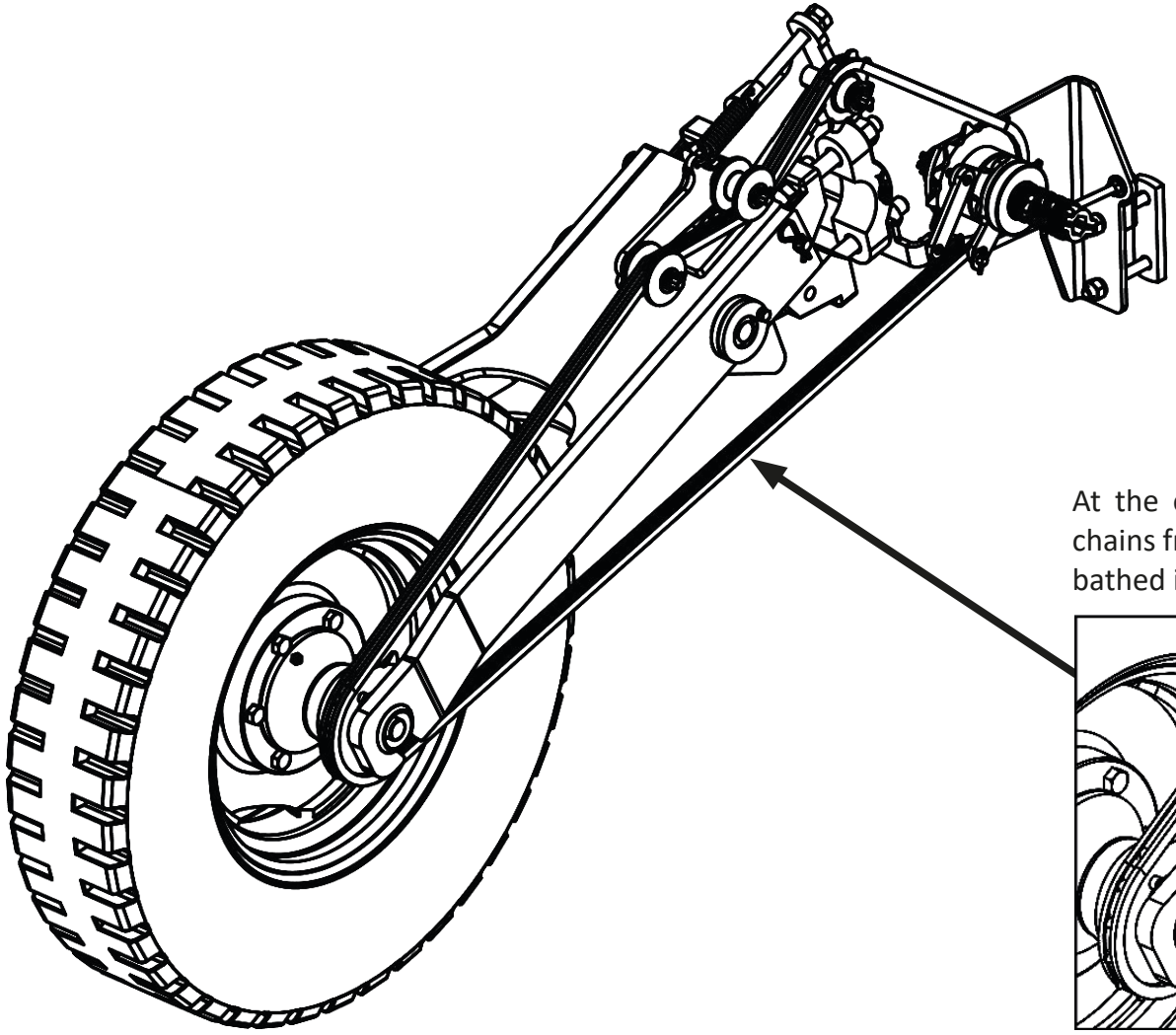
At the end of each season, remove the internal transmission chains and keep them bathed in oil until the next season.

INTERNAL TRANSMISSION CHAINS



▪ Maintenance

• Lubrication - Wheelsets chains

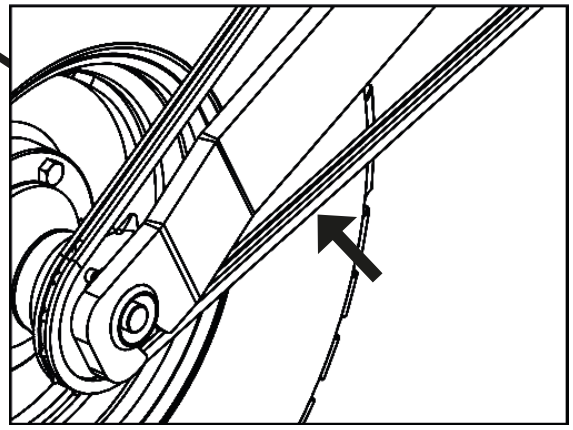


⚠ ATTENTION

When lubricating the SPE TOP LINE FLEX AIR, do not exceed the amount of new grease. Insert a sufficient amount.

LUBRICATION FREQUENCY:

At the end of each season, remove the chains from the wheel sets and keep them bathed in oil until the next season.

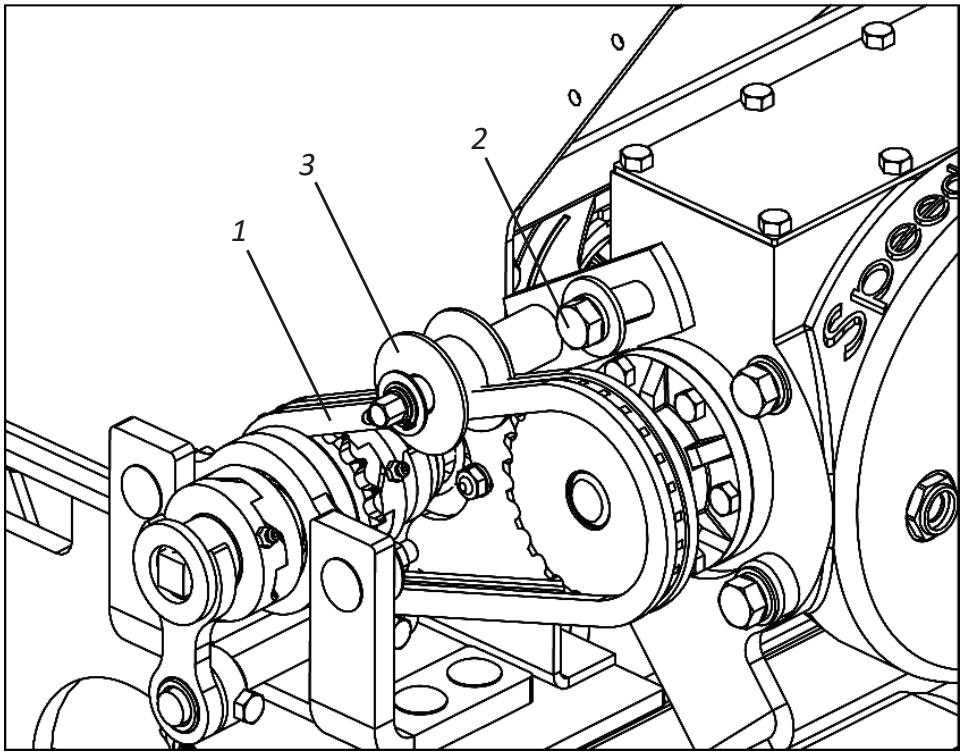


▪ Maintenance

• Chain tension

To tension the chain (1), proceed as follows:

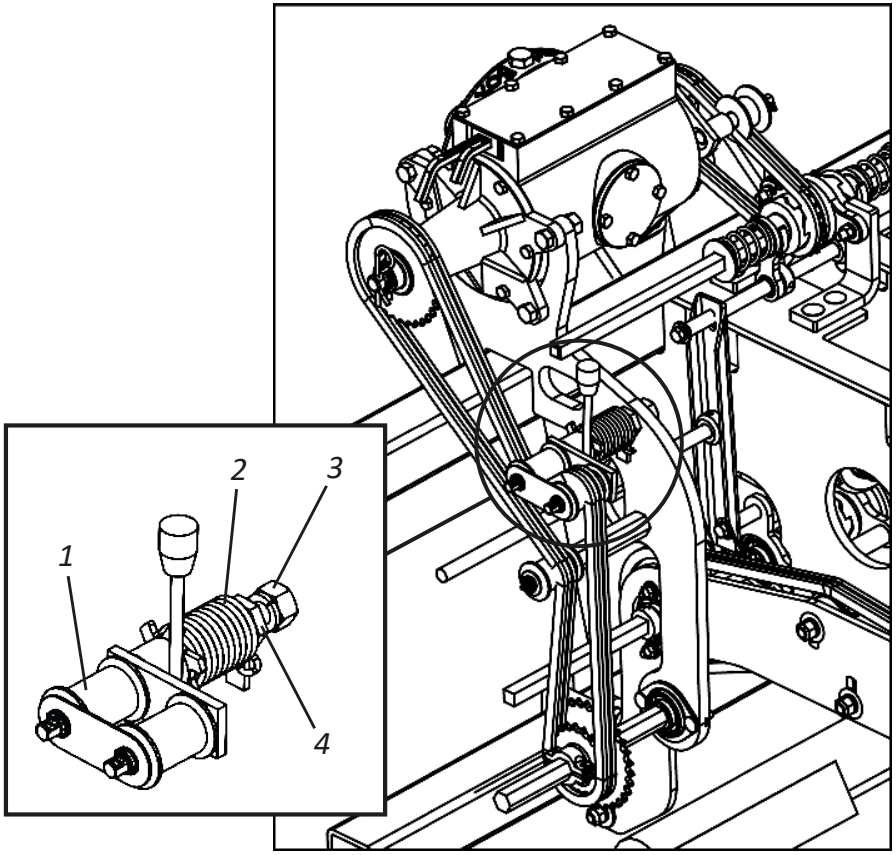
01 - Loosen the screw (2), slide the tensioner (3) adjustment of the chain tension (1).
02 - Then, tighten the screw (2).



⚠ ATTENTION | **Check chain tension daily, normal clearance should be + - 1 cm in the center of the chains.**

• Oscillating tensioner

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



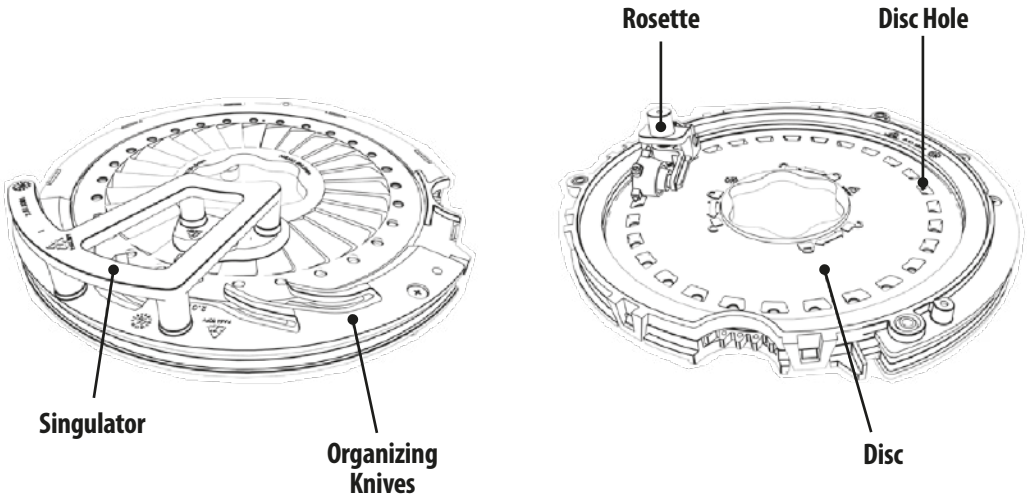
▪ Maintenance

• Preventive maintenance on the SELENIUM dispenser before planting - Part I

Perform preventive maintenance on the **SELENIUM** dispenser before planting as instructed below:

1 - DISC, ORGANIZER AND ROSETTE ASSEMBLY

01 - Check **the disc, organizer and rosette** assembly. Replace the assembly quando houver desgaste excessivo em qualquer um das seguintes peças:

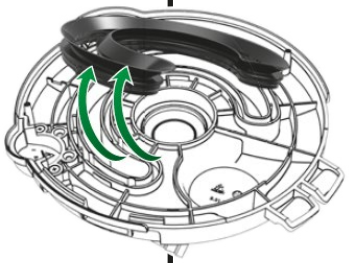


2 - SEAL

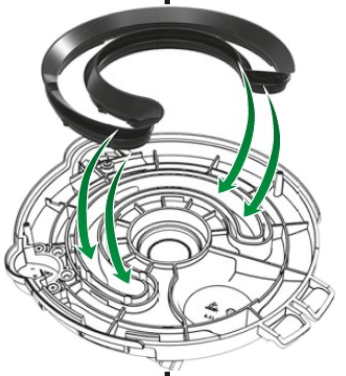
Check for excessive wear, cracks or holes in the vacuum seal. If you have any of the items mentioned, replace the seal.

STEP BY STEP FOR SEAL REPLACEMENT

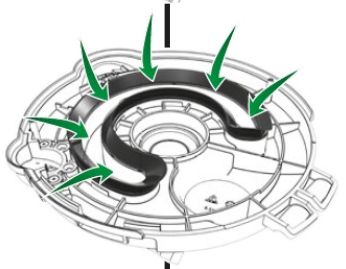
01 - Remove the sealing rubber from the dispenser cover, pulling ir **upwards**.



02 - First assemble the ends of the new seal on the dispenser cover.



03 - Fit all the rubber on the dispenser, cover, **pressing it down.**



▪ Maintenance

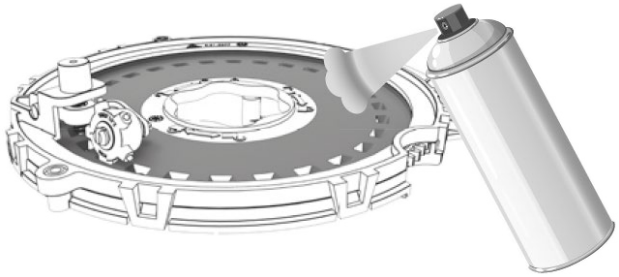
• Preventive maintenance on the SELENIUM dispenser before planting - Parte II

3 - GRAPHITE POWDER IN THE DISPENSER

Make sure **the dispenser is well lubricated with powdered graphite before each planting**, if not, apply powdered graphite to the dispenser **before filling it with seed.**

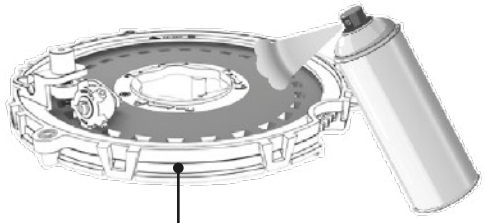
4 - GRAPHITE ON DISC

Check if the graphite on the back of the disc (rosette side) is worn and, if so, **apply J.Assy Graphite Lubricant Spray** to the entire surface of the disc.



STEP BY STEP
FOR GRAPHITE APPLICATION ON THE DISC

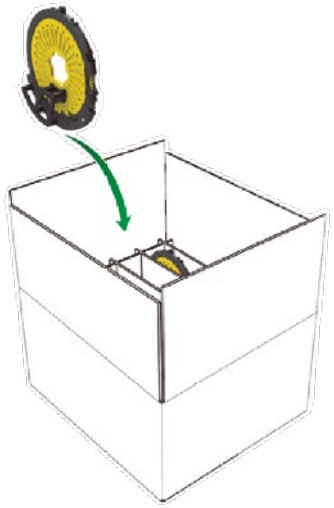
Position the **disc assembly horizontally**, then apply J.Assy **Graphite Lubricant Spray all over the disc**. Wait for it to dry (disassembly of the disc array is not required). See next.



Position the set horizontal

5 - STORAGE

When not in use, store the disc set in its original box for your protection.



IMPORTANT:

To maintain the life of the seal, always keep the back side of the disc well graphited.

6 - CLEANING

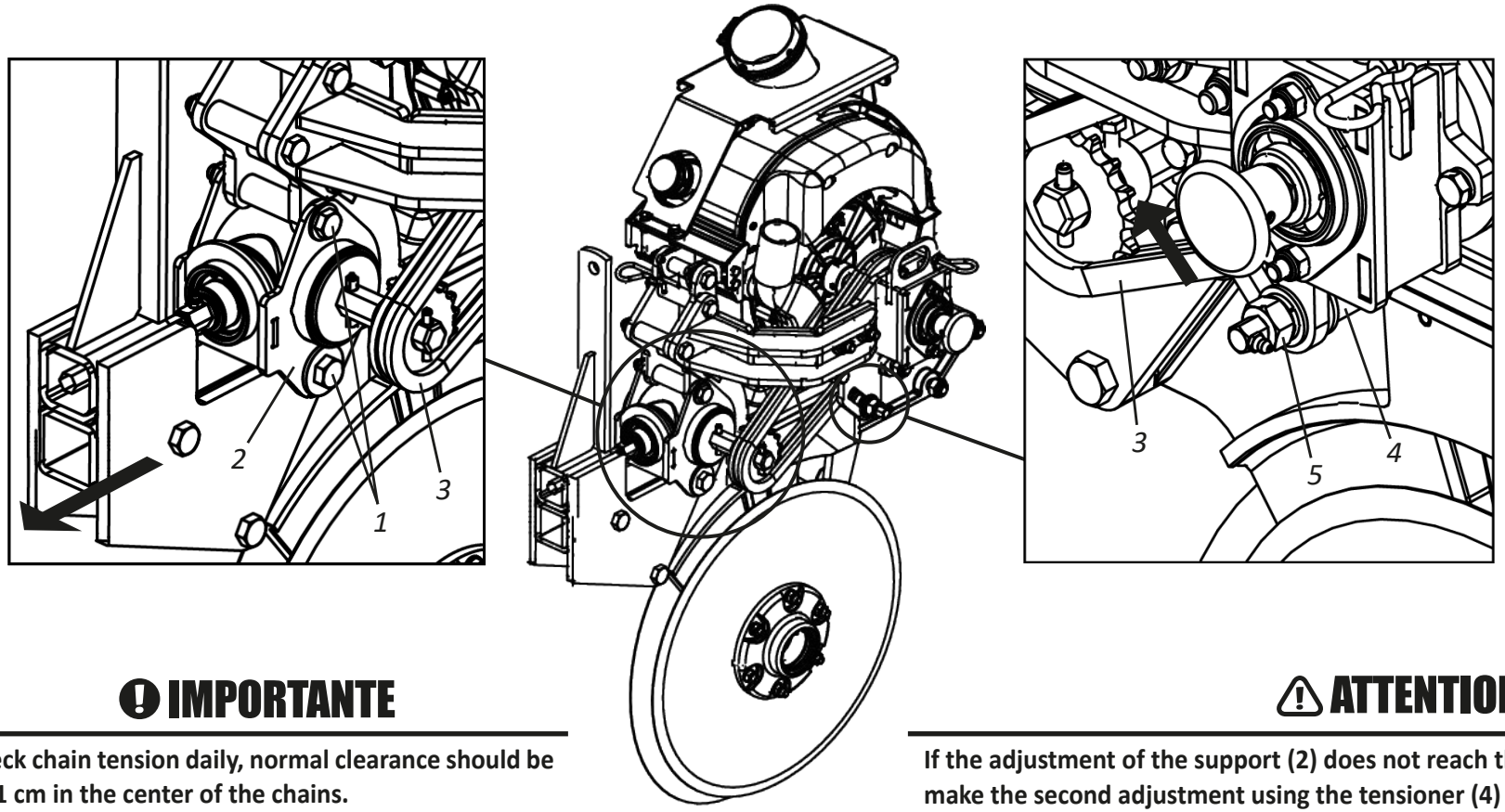
In case of accumulation of residues and dust in the dispenser, clean it to ensure the correct functioning of the product.

▪ Maintenance

• VSET2 dispenser transmission chain tension

When the feeder chain is skipping the gear teeth, tension the chain to do this, proceed as follows:

01 - Loosen the screws (1), pull the support (2) adjustment of the chain tension (3).
02 - Then, retighten the screws (1).



❗ IMPORTANTE

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

⚠ ATTENTION

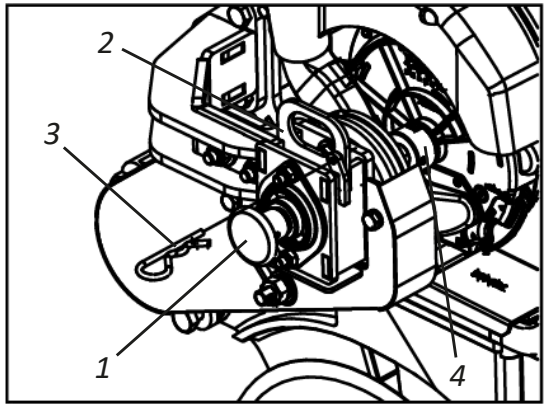
If the adjustment of the support (2) does not reach the necessary chain tensioning (3), make the second adjustment using the tensioner (4) by loosening the nut (5).

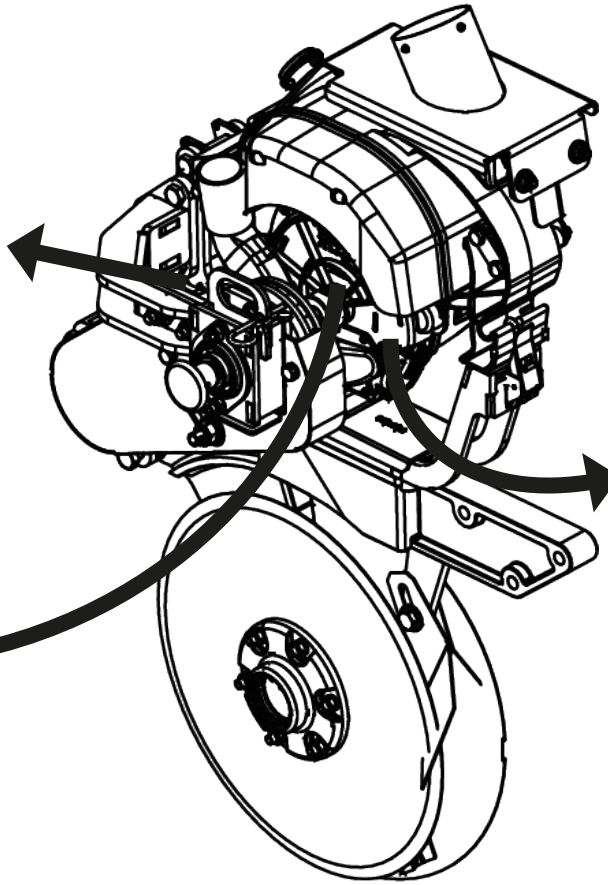
▪ Maintenance

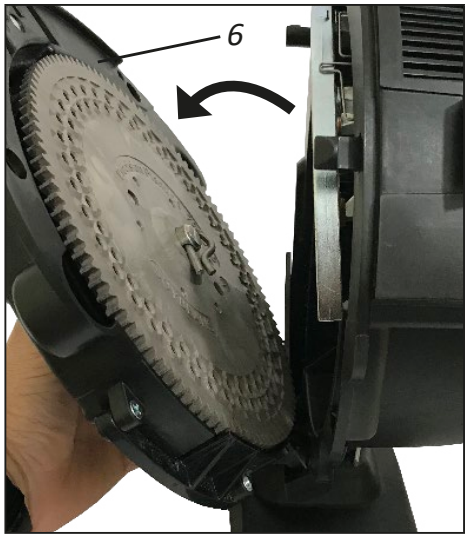
• VSET2 dispenser disc replacement

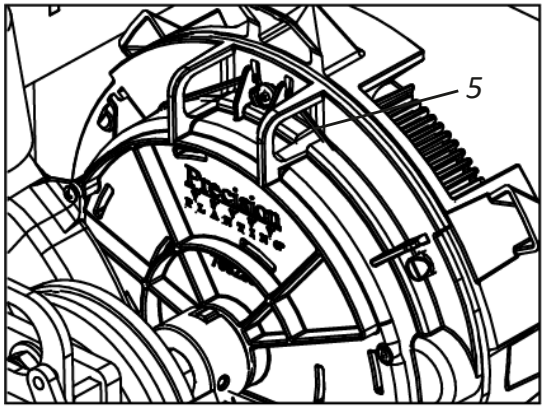
To change the VSET2 disc, proceed as follows:

01 - Remove the lock (1) and pull the lock plate (2) upwards.
02 - Then pull the knob (3) to uncouple the transmission shaft (4).
03 - Then release the lock spring (5) from the dispenser cap.
04 - Then remove the dispenser cover (6) and replace the disc.
05 - When you have finished changing the disc, reassemble the dispenser.









⚠ ATTENTION

To change the dispenser disc, follow the manufacturer's instructions on pages 49 to 50.

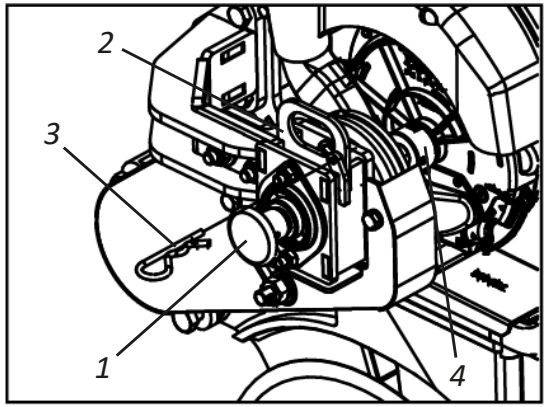
▪ Maintenance

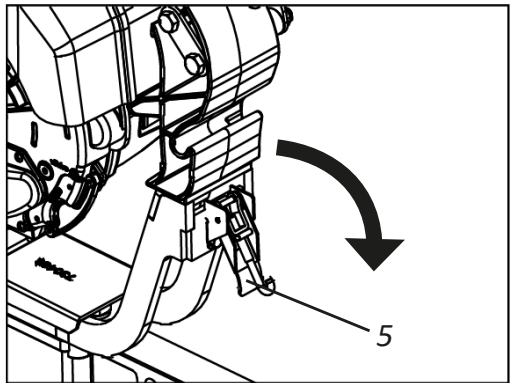
• Maintenance or replacement of the VSET2 feeder - Part I

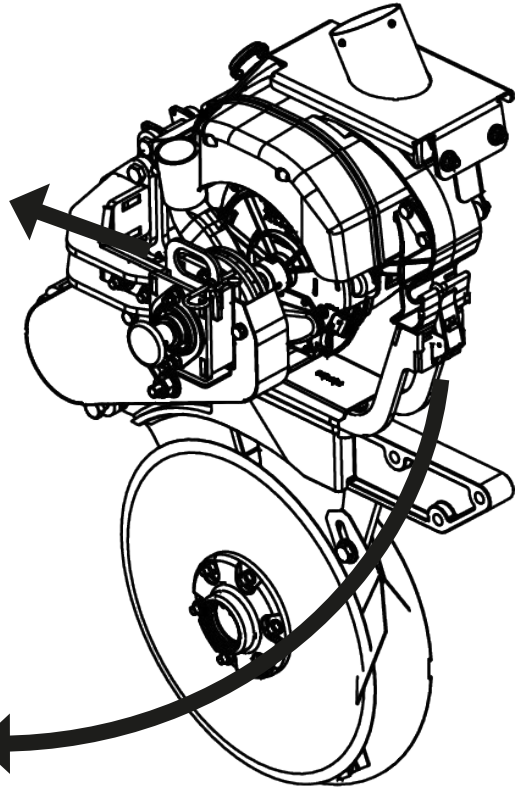
To service the dispenser or nozzle, proceed as follows:

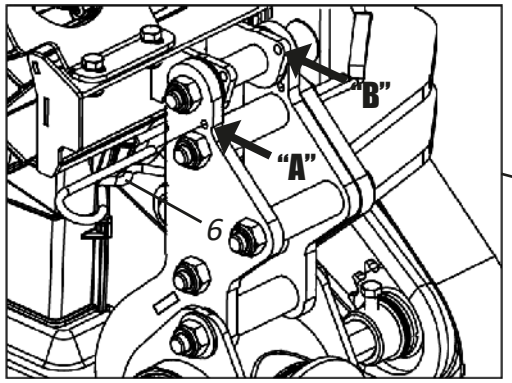
01 **-** Remove the lock (1) and pull the lock plate (2) upwards.
02 **-** Then pull the knob (3) to uncouple the transmission shaft (4).
03 **-** Then, release the lock (5).

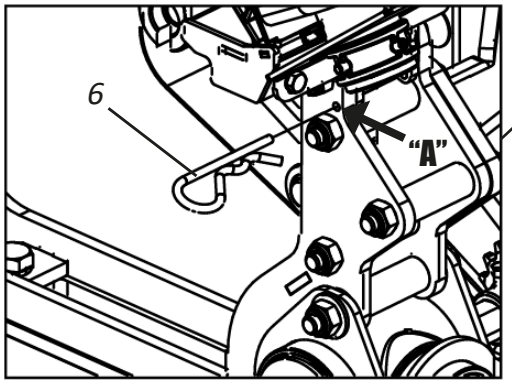
04 **-** Then, remove the lock (6) from point **"A"**, articulate the dispenser (7) fixing point **"B"** in point **"A"** through the lock (6) passing it partially.

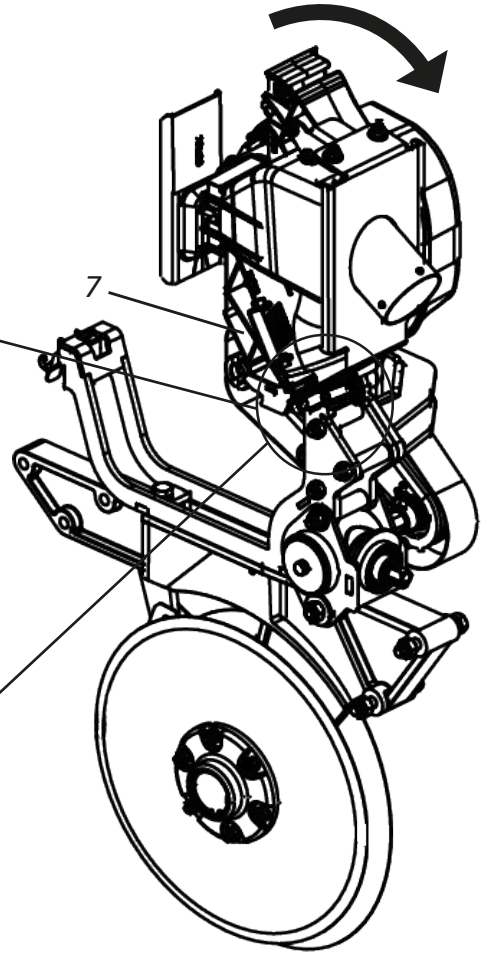








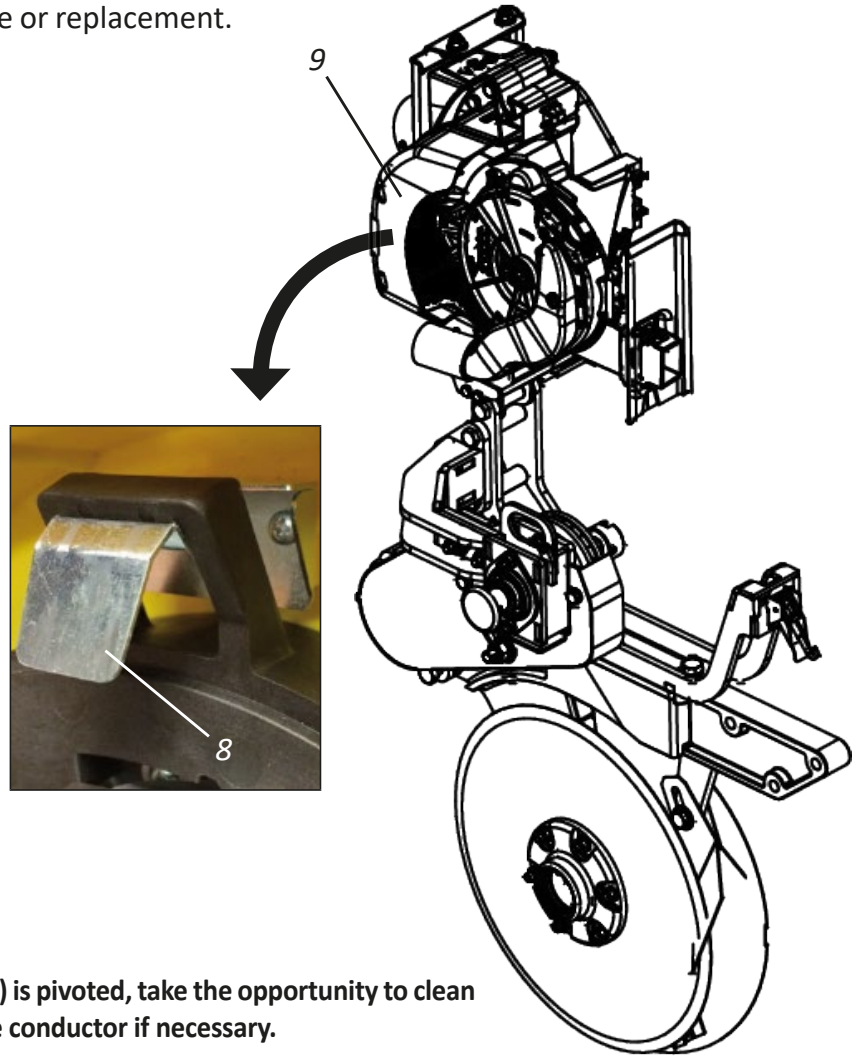




▪ Maintenance

• Maintenance or replacement of the VSET2 feeder- Part II

05 - Then, tighten the lock (8) to release the dosing assembly (9) and do the maintenance or replacement.
06 - When servicing or replacing the dispenser set (9) is complete, reassemble it.



IMPORTANT | **When the dispenser (9) is pivoted, take the opportunity to clean the seed sensor on the conductor if necessary.**

▪ Maintenance

• Operational maintenance - Part I

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
During planting, fertilizer begins to leak from the safety outlets.	Clogged hoses or pieces of plastic in the fertilizer conducing spirals.	Unclog the hose or remove the upper channel that gives access to the spiral, rotate the shaft in the opposite direction until the foreign body that is stuck loosens.
Fertilizer hub shaft does not rotate.	Spiral blocked by wet fertilizer or excess fertilizer in the closed line.	Unclog the spirals, check if you have a loose gutter and the fertilizer may be entering by their sides.
A planting line is less deep than the other.	Different pressure settings on the depth limiting wheels or in the springs of the line.	Set all wheels to equal depth and regulate the pressure of the line springs.
The ridge is too open during planting.	Sticky soil that sticks to the discs or excessive speed of work.	Decreases work speed.
Strange noise when operating or walking with the loaded sower.	Loose wheels or wheel hub.	Re-tighten the wheel nuts. Adjust the wheel hub bearings.
The sower leaves the planting line, sometimes to one side, sometimes to the other, sideways.	Tractor drawbar loose.	Use the pin that comes with the seeder. Secure the tractor drawbar in the center hole.
It is not covering the ridge.	Poorly adjusted covering wheels or damp grounds.	Adjust the covering wheel by moving it sideways in relation to the ridge.
The hydraulic cylinders stop operating, lifting the sower and then doesn’t lower or vice versa.	Different quick hitch, sphere type male and needle type female or vice versa.	Proceed by changing the quick hitch, placing two of the same type.
Broken seeds.	High planting speed.	Decrease work speed.
	Inadequate disc thickness.	Use suitable disc (hole thickness and diameter).
	Poorly placed disc. The seed sieve is not suitable for the disc used.	Insert the disc properly (note the sentence: THIS SIDE DOWN).
	Using moist seeds.	Using dry seeds.

▪ Maintenance

• Operational maintenance - Part II

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Damaged tires.	Work area with stones, stumps or crop remains with stems that cause tire cutting.	Eliminate the elements that cause damage to the tires before using the **SPE TOP LINE FLEX AIR.**
	Tires are not inflated, causing deformations.	Maintain proper tire pressure.
Strange noise on wheels.	Loose wheels or wheel set.	Retighten the wheel nuts and adjust the bearing wheel hub.
	Bearings breakage.	Identify the occurrence and replace the damaged parts.
Quick hitch does not fit.	Couplings of different types.	Exchange them for males and females of the same type.
Seeds “double” spaced in dispensing.	Feeder transmission chain is skipping gear teeth.	Adjust chain tension according to the instructions on page 91.
Leak in hydraulic hoses.	Sealing material on the screw thread is missing.	Use thread sealant tape and retighten carefully.
	Insufficient tightening.	Retighten carefully.
	Damaged repairs.	Replace terminals.
Leak in quick couplers.	Insufficient tightening.	Retighten carefully without excess.
	Damaged repairs.	Replace repairs.
Quick couplings do not couple.	Couplings of different brands.	Use quick couplers of the same brand.
	Mixture of needle-type couplings with ball-type couplings.	Always use quick couplers of the same type.
	Pressure on the system.	Relieve pressure to couple.

▪ Maintenance

• Acessories of the Fertisystem dispenser

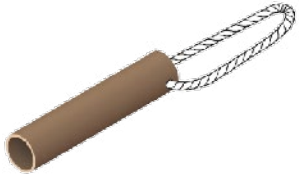
The Fertisystem feeder is assembled with a level regulator “cross cap” and a worm spring (step 2).

“CROSS-LID” LEVEL REGULATOR

ENDLESS SPRING (STEP 2”)

The Fertisystem dispenser comes with the accessories: maintenance tube, fixing tube and blocking tube.

MAINTENANCE TUBE

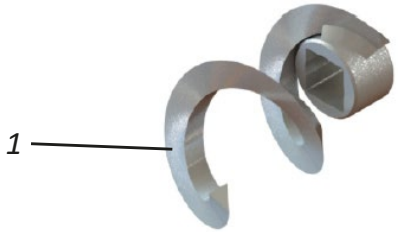


FIXING TUBE

BLOCKING TUBE

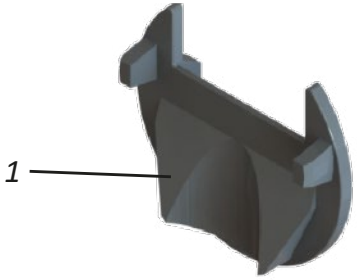
• Endless spring

On the **SPE TOP LINE FLEX AIR,** the Fertisystem dispenser leaves the factory assembled with the 2” pitch worm spring (1).



• “Cross-lid” level regulator

The Fertisystem dispenser leaves the factory fitted with the “Cross-Lid” level regulator (1). The uniformity and precision in the distribution is due to the level regulator “Cross-Lid” (1), which has the function of canceling the pulsating effect of the endless spring cycle and also controlling the dosage.



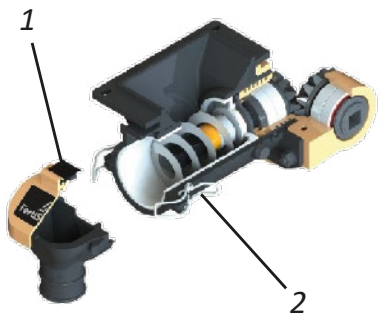
⚠ ATTENTION | **Never operate without the level regulator “Cross Cap” (1). Make sure it is properly positioned in the nozzle.**

▪ Maintenance

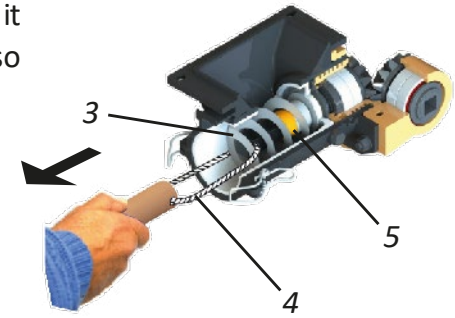
• Maintenance or replacement of the Fertisystem dosing spring

After planting, do not leave fertilizer in the tank. To maintain or replace the worm-spring or to clean or repair the internal part of the Fertisystem dispenser, proceed as follows:

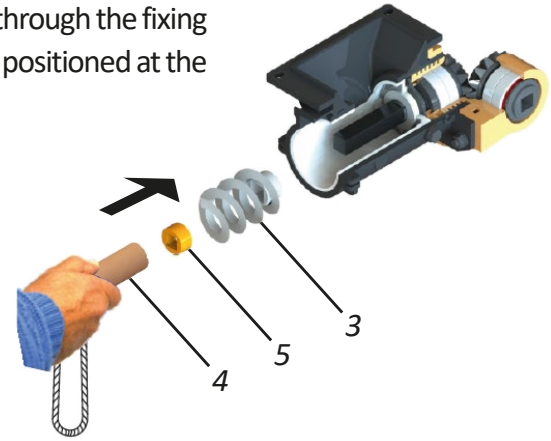
01 - Uncouple the nozzle (1) through the stainless steel latch (2).

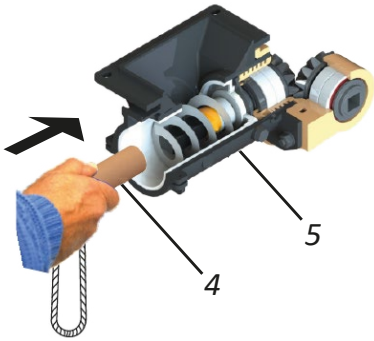


02 - Then, remove the endless spring (3), pulling it through the cord of the fixing tube (4), also removing the locking ring (5).



03 - After cleaning, replace the endless spring (3), together with the locking ring (5), through the fixing tube (4), making sure that the endless spring (3) and the locking ring (5) are well positioned at the base of the shaft (6).



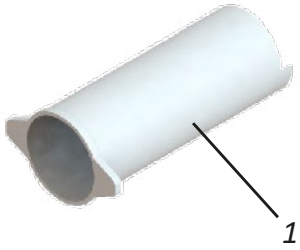


⚠ ATTENTION **Keep the worm spring in place with the locking ring. This procedure will avoid damaging the cross cover when not using the seeder with the fertilizer or when transporting the seeder. In case of wear or lack of tightening “pressure” of the lock ring (5), replace it.**

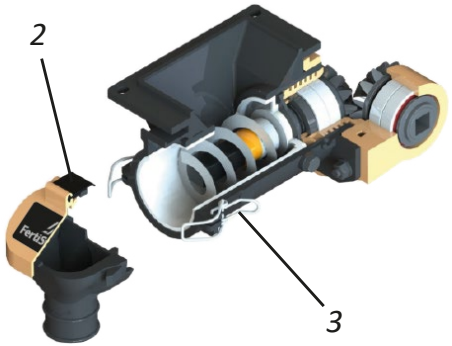
▪ Maintenance

• Fertisystem dispenser maintenance tube

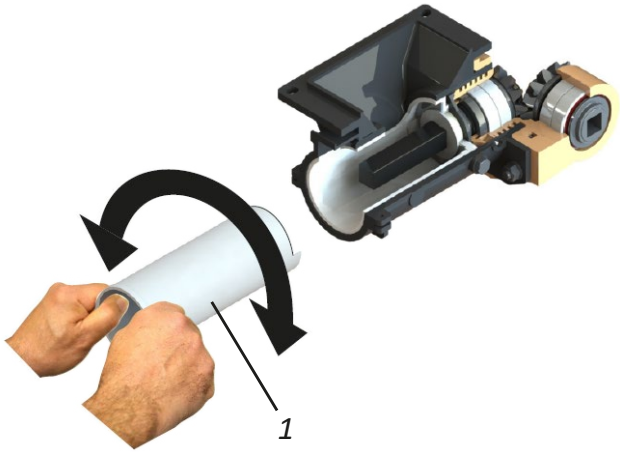
To maintain or change the endless springs in the Fertisystem feeder without the need to remove the fertilizer from the tank, use the maintenance tube (1), to do this, proceed as follows:



01 - Disengage the nozzle (2) through the stainless steel lock (3).



02 - Then, introduce the maintenance tube (1) in rotating movements promoting the displacement of the fertilizer to the bottom of the dispenser. Then perform the necessary maintenance.

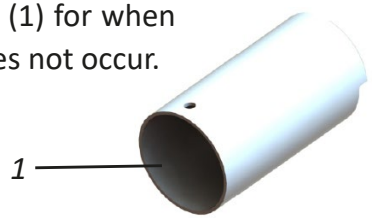


NOTE | **The maintenance tube (1) has an end cut angle to facilitate this operation.**

▪ Maintenance

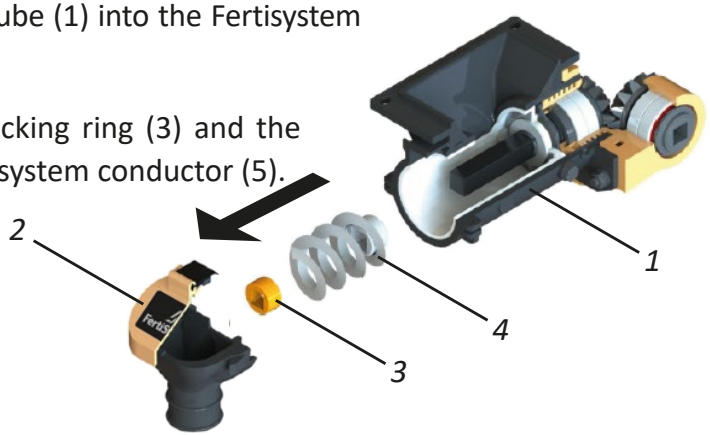
• Fertisystem dispenser blocker tube

The **SPE TOP LINE FLEX AIR** comes with a blocking tube (1) for when need to isolate some planting rows, fertilizer distribution does not occur.

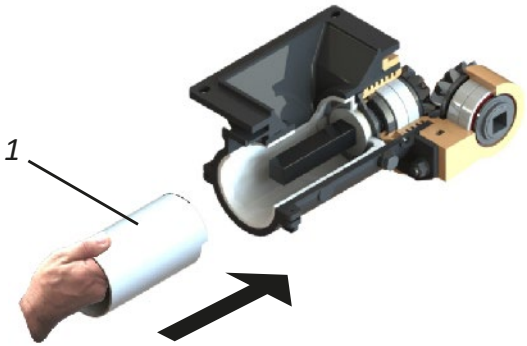


In order to place the blocking tube (1) into the Fertisystem dispenser, proceed as follows:

01 - Remove the nozzle (2), the locking ring (3) and the worm spring (4) from the fertisystem conductor (5).



02 - Then insert the locking tube (1).



03 - Then, replace the nozzle (2).

• Spring and cap (optional) - Fertisystem dispenser

The **SPE TOP LINE FLEX AIR** leaves the factory with a 2" pitch worm spring and transverse cover **(standard)**, however, optionally the seeder can be supplied with a 1" pitch worm spring and high-flow cover.

ENDLESS SPRING (STEP 1")

HIGH FLOW COVER

NOTE

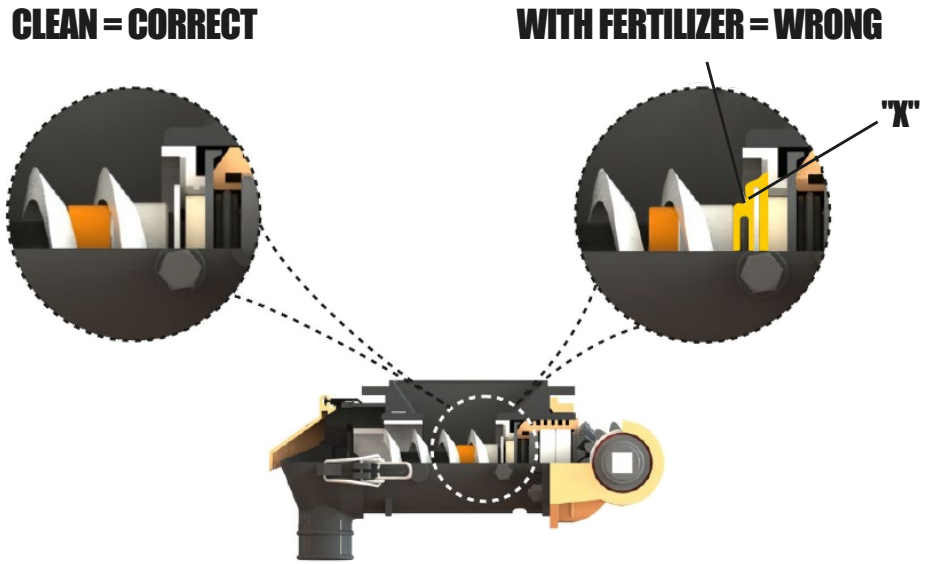
Always fill the fertilizer tank at the work location. Avoid any kind of impurity in the fertilizer tank. Carry out a measurement of dosage daily.

▪ Maintenance

• Cleaning of the Fertisystem dispenser

We consider it mandatory to clean parts and components of the Fertisystem dispenser that maintain direct and indirect contact with fertilizers, since they are highly corrosive and abrasive, and can promote oxidation and destructible chemical reactions, through the effects of acidity, salinization and others, chemical fertilizers.

After planting is complete, disconnect the nozzle (1), the endless springs (2) and wash the sets thoroughly, keeping them free of fertilizers until new use, making the assemblies correctly.



⚠ ATTENTION

Make sure that there is no fertilizer in the "X" area between the washers and the sealing felt.
In case of extreme need to use the fertilizer out of specification and/or with excess moisture, perform daily cleaning of the endless springs and other components. Do not carry out maintenance or cleaning in the bearing area, in the endless springs and in the gears while the subsoiler is in motion.

▪ Maintenance

• VSET2 maintenance

ANNUAL MAINTENANCE

1. Check for wear on the singulator.
    - Replace when excessive wear occurs. An increase in doubles may indicate excessive wear on this part.
    - A singular check can be done using the eSet kit tool.
2. Check the vacuum seal for cracks/wear.
3. Verify that the disc's graphite has been removed. (Reapply graphite if it is removed).
    - Replace the disc if the disc holes become too deformed or if seeds cross to the vaccum side.
4. Check for ejector wheel wear.
    - Replace the assembly if excessive arm wear occurs inside the ejector wheel.
    - Inspect each ejector wheel pin to make sure it is intact.
    - Check the plastic tension and replace it if it is loose at the mounting location.
5. Check for excessive wear on the brushes.
    - Replace when brush clearance/wear becomes significant enough to allow seeds to pass through.
6. Test the dispensers on the MeterMax Ultra test bench to ensure maximum performance.
7. When out of the planting season, disassemble the dispensers.
    - Remove the crop kit components from the dispenser housing.
    - Store in a flat and dry environment.
8. VSet 2 vacuum seal replacement
    - Remove the current seal by pulling it out of the meter housing.
    - Check that both the new seal and the socket in the meter housing are clean of debris. If they need cleaning, use hot water and a cloth or compressed air.
    - Insert a new seal at the beginning of the housing at one end. As the seal is adjusted, check that the retaining latches on the dispenser cavity surface are showing. Make sure the seal is firmly seated and there are no bumps or protrusions.
    - All retaining latches must be used and the seal must be seated in the cavity. Alignment of the retaining latches will help ensure proper sealing.

▪ Maintenance

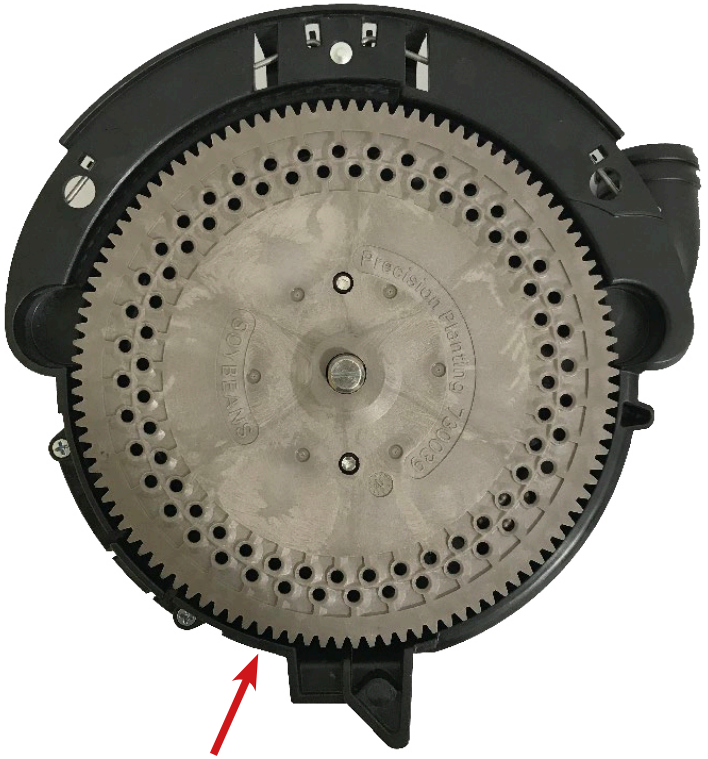
• Troubleshooting VSET2 - Part I

TROUBLESHOOTING TIP

A good way to troubleshoot specific lines is through the elimination process. Try replacing the components of the "bad" lines with the components of the "good" lines until you determine the root cause.

Symptom: the meter for sowing.
Solution:

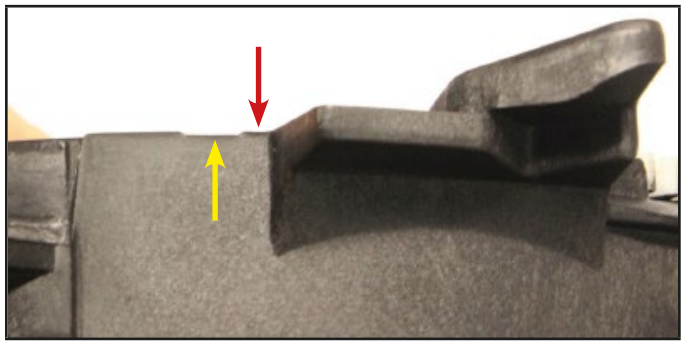
- If one meter stops sowing while the others continue and this is not due to a section cut event, so it is likely that the line has run out of seeds, the clutch has failed, or the vacuum has been disconnected.
- If none of this explains the problem, check the drive system. One component to look at is the safety pin that connects the drive adapter to the drive shaft. It is simply a 2.3 x 15.8mm (3/32 x 5/8 in) cylindrical pin designed to break under torque greater than allowed. Replace the pin by inserting the new one, which will simultaneously push the old one out. Also, look inside the dispenser to investigate the cause of the disruption. The likelihood of something being locked inside the meter is high, as the safety pin is designed to break in this situation.
- Seed blockage is another possible cause of dispenser failure when planting. If you detect obstruction, consider opening the deflector to a higher position.
- If there are no foreign objects in the dispenser, look for evidence of seed grinding. If this seems to be the case, the disc may not be properly shimmed. Disc shims are set at the factory, but it is possible for them to fall. At the bottom end of the meter housing is an alignment gauge for the disc. The arrow points to the gauge. The process of installation of the disc shims is different from that used on the vSet Classic meter largely due to the overall meter design. You should receive your vSet 2 meters with a correctly fitted meter disc.



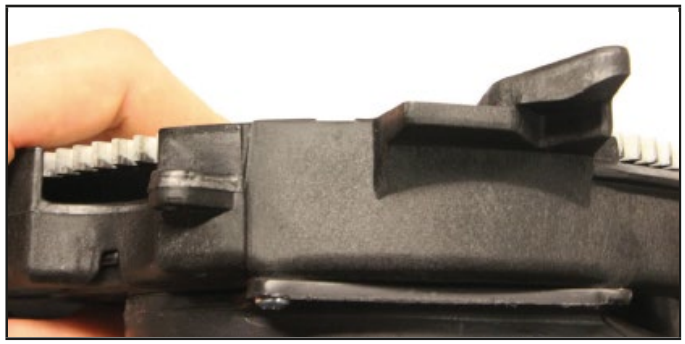
▪ Maintenance

• Troubleshooting VSET2 - Part II

• The disc must be wedged between each housing plan. Visualize the surface of the disc relative to the shoulder. The disc surface should be between the first and the second shoulder, as shown by the arrows below.



• To check, hold the disc flush against the center drive plate. The number of shims required is determined by adding or removing shims from the disk between the lower and upper planes.The meter disc needs to be checked in at least two positions to determine the final shim count.Turn it 180 to check it.



Symptom: too many flaws.
Solution:

• Check that the correct singulator, disc, and ejector wheel are installed on the meter. Do not exchange components amongst themselves as this will result in performance degradation.

• If the dispenser constantly fails, make sure there are no fragments lodged in the disc holes.

• When mounting the dispenser, make sure the singulator is properly installed and the shoulders are seated and level against the surface of the disc.

• Check the manifold and seed tube outlet chute on the line unit for debris that could divert seeds.

• Check that the disc has proper shims as shown above. The disc may have difficulty loading if the wrong number of shims is used.

• Increase the vacuum. Check for leaks in the vacuum system that could cause certain lines to have less vacuum. However, if singulation problems are the result of lack of vacuum pressure, singulation errors will generally occur throughout the planter.

▪ Maintenance

• Troubleshooting VSET2 - Part III

Symptom: Excess Doubles.
Solution:

• Check that the correct singulator, disc, and ejector wheel are installed on the meter. Do not exchange components amongst themselves as this will result in performance degradation.

• When mounting the dispenser, make sure the singulator is properly installed and the shoulders are seated and level against the surface of the disc. Make sure that the radial spring (which pushes the singulator toward the center of the disc) is installed and acting on the singulator.

• Check the manifold and seed tube outlet chute on the line unit for debris that could divert seeds.

• Check for excessive wear on the singulator.

• Reduce the vacuum. In general, 20 in. of water are suitable for all types of seeds, but reduce if necessary. Continue to reduce vacuum pressure until gauge separation improves. If doubles are caused by excessive vacuum pressure, singulation errors will generally occur throughout the planter.

Symptom: Bad Spacing.
Solution:

• Check the meter and seed tube outlet chute on the line unit for debris that could divert seeds.

• Check dispenser drive system. Confirm that the chains are in good condition and well lubricated.

• Try rotating the meter manually. Look, feel, and listen for unusual sounds as it spins. If it is hard to rotate, remove the disc and look for debris that may be stuck in the dispenser, ensuring it is properly shimmed as shown earlier.

• When using vDrive, check for seed fragments between the disc teeth. Clean and add shims.

• Look for evidence of where the seed is making contact with the seed tube and outlet chute. Make sure that the seed container is positioned so that the meter releases the seeds in the center of the seed tube.

• Check that the dispenser is properly aligned.

• Make sure your air vents are allowing free air flow through the meter. The vent is integrated into the mini-hopper housing.

• Reduce speed to see if poor spacing is caused by drive system operation.

• Make sure graphite is being used and mixed in the seed box.

Symptom: Incorrect Population

Solution:

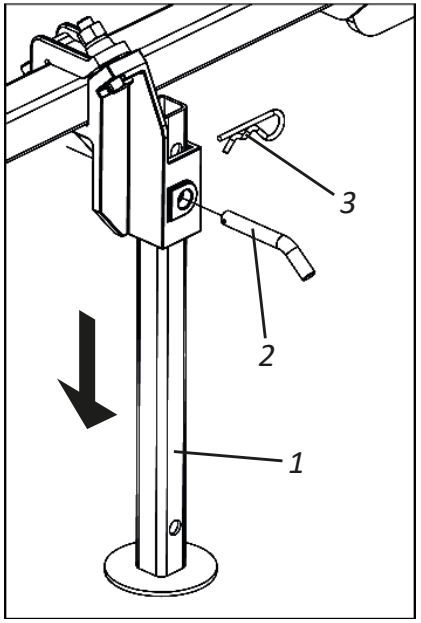
• If you are using hydraulic motors, vDrive or SpeedTube, double-check the engine calibration and configuration. Verify that the "seeds per dispenser rotation" setting is correct.

▪ Maintenance

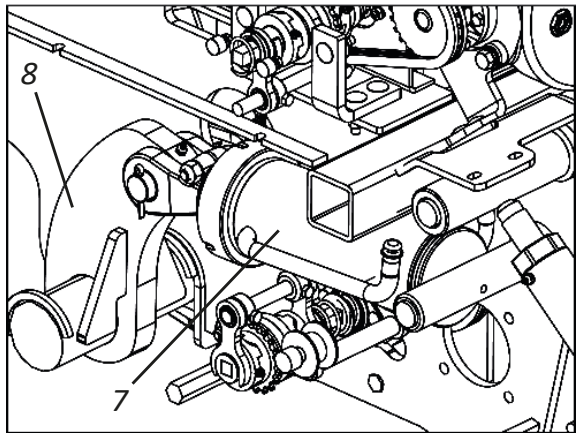
• Changing tires

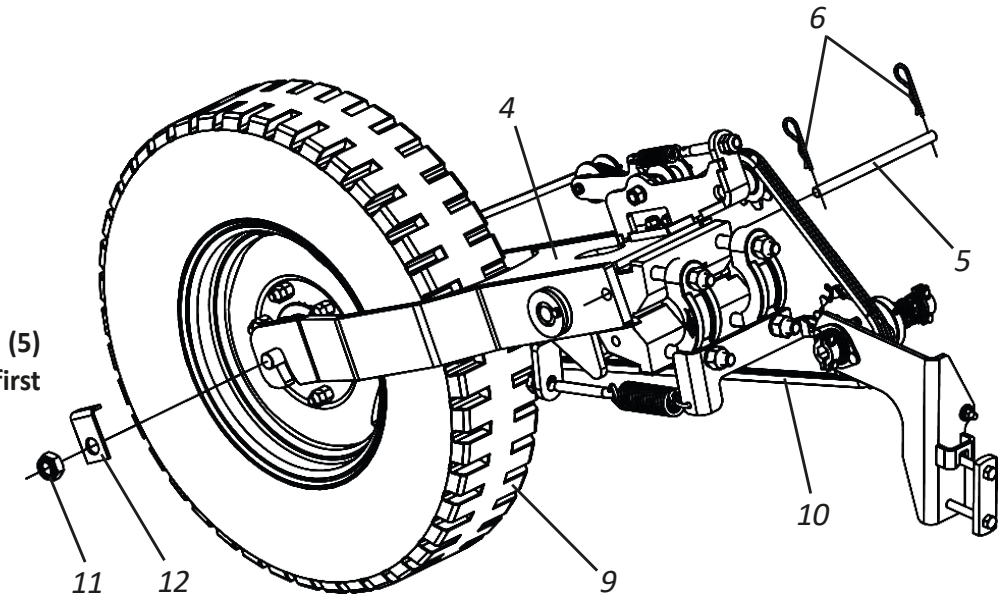
If necessary, change or repair the tires for this, proceed as follows:

01 - First, support the **SPE TOP LINE FLEX AIR** on the back so that it is stabilized.



02 - Then, lower the support supports (1) on the front of the seeder and fix them with the pins (2) and latches (3).
03 - Then, lock the wheel set (4) through the pin (5) and locks (6).
04 - Then, fully retract the hydraulic cylinder (7) from the center shaft (8) to suspend the tire (9) from the ground.
05 - Finally, remove the chain (10), loosen the nuts (11) and latches (12) to remove the tire (9).





⚠ ATTENTION | **When you finish changing the tire, remove the locks (6) and the pin (5) by unlocking the wheel set (4). Do not work with the seeder without first removing them. Ignoring this warning will cause planting failures.**

❗ IMPORTANT | **Before changing or repairing the tire, make sure the SPE TOP LINE FLEX AIR is properly supported. Failure to do so can cause damage, serious accidents or even death.**

▪ Maintenance

• Care

01 - Before each work, check the condition of all hoses, pins, screws, bearings, discs, and sections. When necessary, retighten or replace them.
02 - Travel speed must be carefully controlled according to terrain conditions.
03 - The **SPE TOP LINE FLEX AIR** is used in several applications, requiring knowledge and attention during handling.
04 - Only local conditions can determine the best way to operate the **SPE TOP LINE FLEX AIR**.
05 - When assembling or disassembling any part of the **SPE TOP LINE FLEX AIR**, use the proper methods and tools.
06 - Carefully observe the lubrication intervals at the different lubrication points of the **SPE TOP LINE FLEX AIR.** Observe the lubrication intervals.
07 - Always check the parts for wear and tear. If replacement is required, always demand genuine Baldan parts.
08 - Always keep the tires of the **SPE TOP LINE FLEX AIR** calibrated.
09 - Always keep the **SPE TOP LINE FLEX AIR** discs sharp.

IMPORTANT | **Proper and periodic maintenance is necessary to ensure the long life of the SPE TOP LINE FLEX AIR.**

• Care during planting

01 - The fertilizer has a great power to absorb moisture and this accelerates the oxidation process, so avoid spillage and accumulation of fertilizer when filling the **SPE TOP LINE FLEX AIR.**
02 - Use a blower, compressed air or broom to remove excess fertilizers from the seeder at the end of the day.
03 - To avoid the effects of fertilizer, protect the **SPE TOP LINE FLEX AIR** by storing it in the shed or covering it with a tarp (as best as possible) during rain ou peand/or night periods, to protect it from moisture.

▪ Maintenance

• General cleaning

01 - When storing the **SPE TOP LINE FLEX AIR**, perform general cleaning and wash it completely with water only. Check that the paint has not worn off, if this has happened, apply a general coat, apply the protective oil and completely lubricate the **SPE TOP LINE FLEX AIR**. Do not use burnt oil or other abrasive.

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

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

03 - Fully lubricate the **SPE TOP LINE FLEX AIR**. Check all moving parts of the **SPE TOP LINE FLEX AIR,** if they show wear or looseness, adjust as necessary or replace parts, leaving the seeder ready for the next job.

04 - After all maintenance work, store the sower in a covered, dry place, properly supported.

Avoid: - That the discs are directly in contact with the ground.
- That the hydraulic hoses are properly capped.

05 - When connecting or disconnecting hydraulic hoses, do not let their ends touch the ground. Before connecting the hydraulic hoses, clean the connections with a clean, lint-free cloth. **Do not use tow!**

06 - Replace all damaged or missing stickers, especially warnings. Make everyone aware of their importance and the dangers of accidents when instructions are not followed.

07 - After all maintenance care, store your **SPE TOP LINE FLEX AIR** on a flat surface, covered and dry place, away from animals and children.

08 - Make sure that the deposits are properly covered.

09 - We recommend washing the **SPE TOP LINE FLEX AIR** with water only at the beginning of the work.

⚠ ATTENTION | **Do not use chemical or abrasive products to wash the SPE TOP LINE FLEX AIR, as this could damage its paint and adhesives.**

▪ Maintenance

• Seeder conservation - Part I

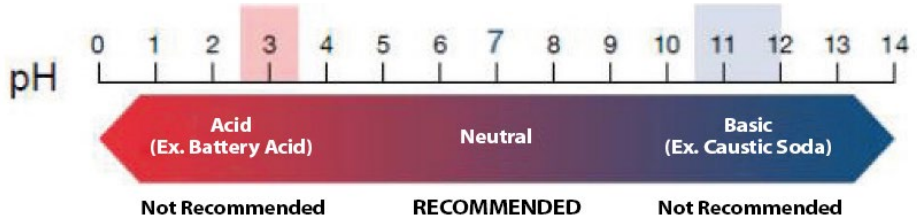
To extend the service life and appearance of the **SPE TOP LINE FLEX AIR** for a longer period, follow the instructions below:

01 - Fertilizers and their additives are highly corrosive and their formulation is increasingly aggressive to the seeder components.
02 - Wash and clean all the seeder components during and at the end of the work season.
03 - Use neutral products to clean the seeder, following the safety and handling guidelines provided by the manufacturer
04 - Always perform maintenance at the times specified in this manual.

• Seeder conservation - Part II

The practices and precautions below, if adopted by the owner or operator, make a difference for the conservation of the **SPE TOP LINE FLEX AIR.**

01 - Caution when performing high pressure washing; do not direct the water jet directly at the connectors and electrical components. Insulate all electrical components;
02 - Use only water and mild detergent (pH equal to 7);
03 - Apply the product, strictly following the manufacturer's instructions, on the wet surface and in the correct sequence, respecting the application and washing time;
04 - Stains and dirt not removed with the products must be removed with the aid of a sponge..
05 - Rinse the machine with clean water to remove all chemical residues.
06 - Do not use: - Detergents with basic active ingredient (pH greater than 7), they can damage/stain the paint job of the seeder.
- Detergents with acid active principle (pH less than 7) act as a paint remover/zinc plating (the protection of parts against oxidation).



▪ Maintenance

• Seeder conservation - Part III

07 - Let the machine dry in the shade so that water does not accumulate in its components. Drying too quickly can cause stains on its paint.
08 - After drying, lubricate all grease fittings according to the operator's manual recommendations.
09 - Spray the entire machine, especially galvanized parts, with protective oil, following the manufacturer's application guidelines. The protector also prevents the adherence of dirt in the machine, facilitating subsequent washing.
10 - Observe the curing time (absorption) and application intervals as recommended by the manufacturer.

⚠ ATTENTION

Do not use any other oil to protect the seeder (used hydraulic oil, "burnt" oil, diesel oil, castor oil, kerosene, etc.).

IMPORTANT

We recommend the following protective oils:
-Bardahl: Protective Agro 200 or 300
-ITWChemical: Zoxol DW - 4000 Series

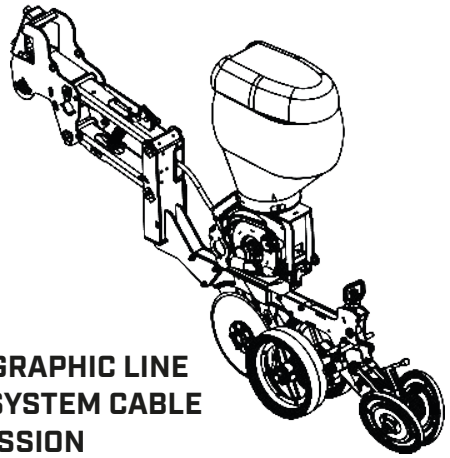
NOTE

Ignoring the conservation measures mentioned above may result in the loss of the warranty for painted or zinc-coated components that present possible oxidation (rust).

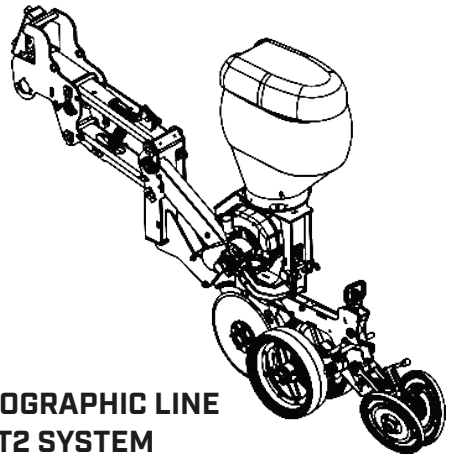
▪ Optional

• Optional acessories - Part I

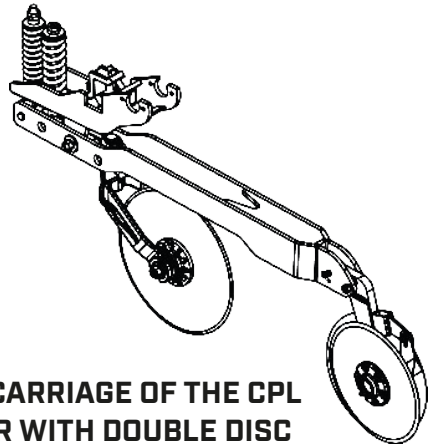
The **SPE TOP LINE FLEX AIR** has options that can be purchased according to the work needs.



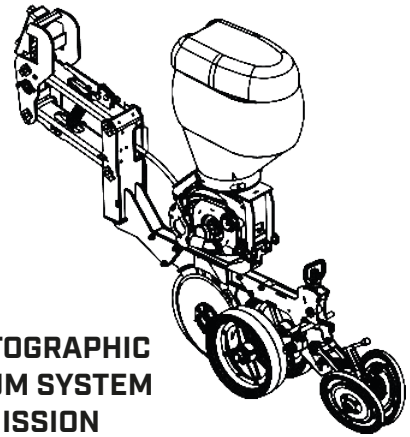
BIG LEFT PANTOGRAPHIC LINE WITH SELENIUM SYSTEM CABLE TRANSMISSION



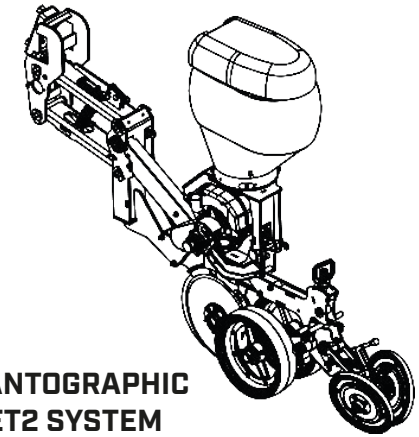
BIG LEFT PANTOGRAPHIC LINE WITH VSET2 SYSTEM



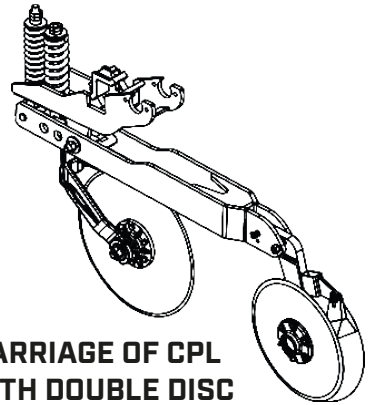
BIG RIGHT CARRIAGE OF THE CPL FERTILIZER WITH DOUBLE DISC



SMALL RIGHT PANTOGRAPHIC LINE WITH SELENIUM SYSTEM CABLE TRANSMISSION



SMALL RIGHT PANTOGRAPHIC LINE WITH VSET2 SYSTEM



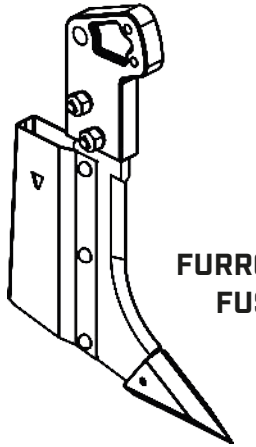
SMAL LEFT CARRIAGE OF CPL FERTILIZER WITH DOUBLE DISC

Optional

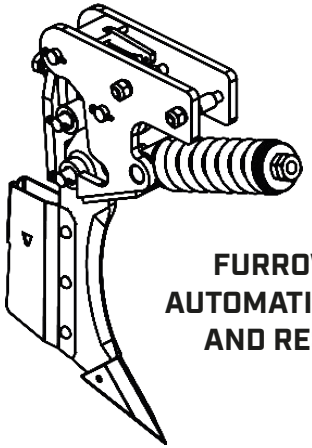
• Optional acessories - Part II

PM 400 ELECTRICAL SYSTEM

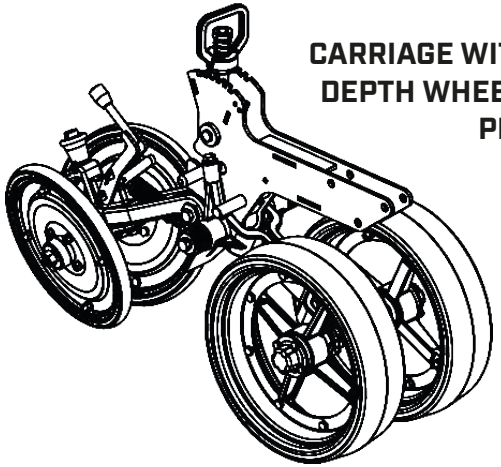
ELECTRONIC DOSAGE TABLE - ETD



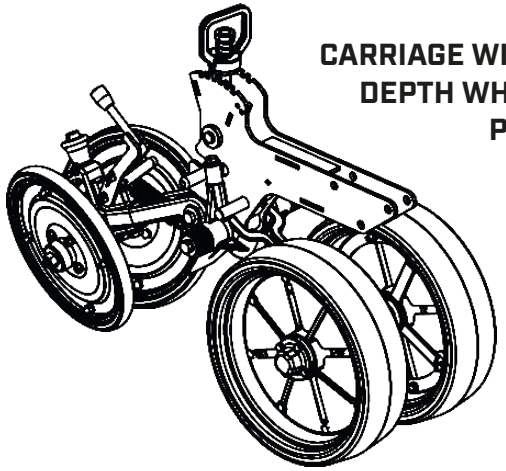
FURROWER W/ FUSE PIN



FURROWER W/ AUTOMATIC TRIPPING AND RESETTING



CARRIAGE WITH EXCENTRIC/OSCILLATING DEPTH WHEEL AND “V” WHEEL WITHOUT PROTECTION RING

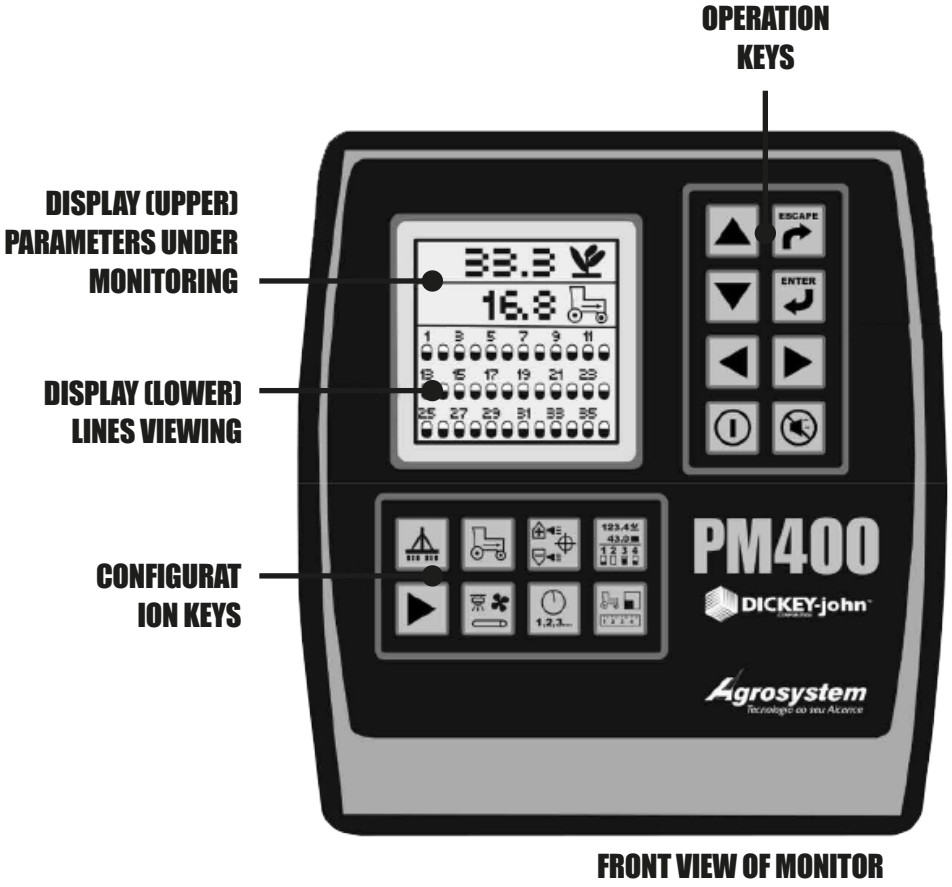


CARRIAGE WITH EXCENTRIC/OSCILLATING DEPTH WHEEL AND “V” WHEEL WITH PROTECTION RING

▪ PM 400 Manual - Optional

• PM 400

• Monitor overview



FRONT VIEW OF MONITOR

▪ PM 400 Manual - 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  is pressed, the navigation mode will be modified to change the data.

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

▪ PM 400 Manual - Optional

• Navigation keys - Part II

ESC (EXIT)

When you press the key 

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

can be used to return to the OPERATION mode.

NOTE: After having changing the data, 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.

▪ PM 400 Manual - Optional

• Setting 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 DISPLACEMENT 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 “Configuration of the Travel Speed”.

▪ PM 400 Manual - Optional

• Setting 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 “Configuration of the Travel Speed”.

▪ PM 400 Manual - Optional

• Setting 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 “Configuration of 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”.

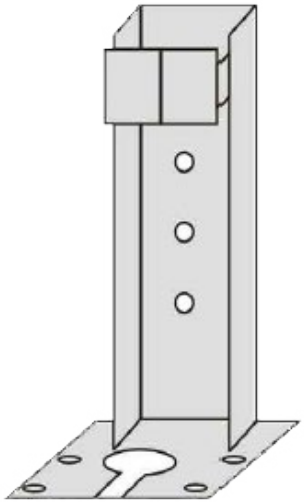
AREA, SPEED, AND DISTANCE MODE

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.

▪ PM 400 Manual - 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. Keep all the materials in the package until the entire inspection has been carried out. 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

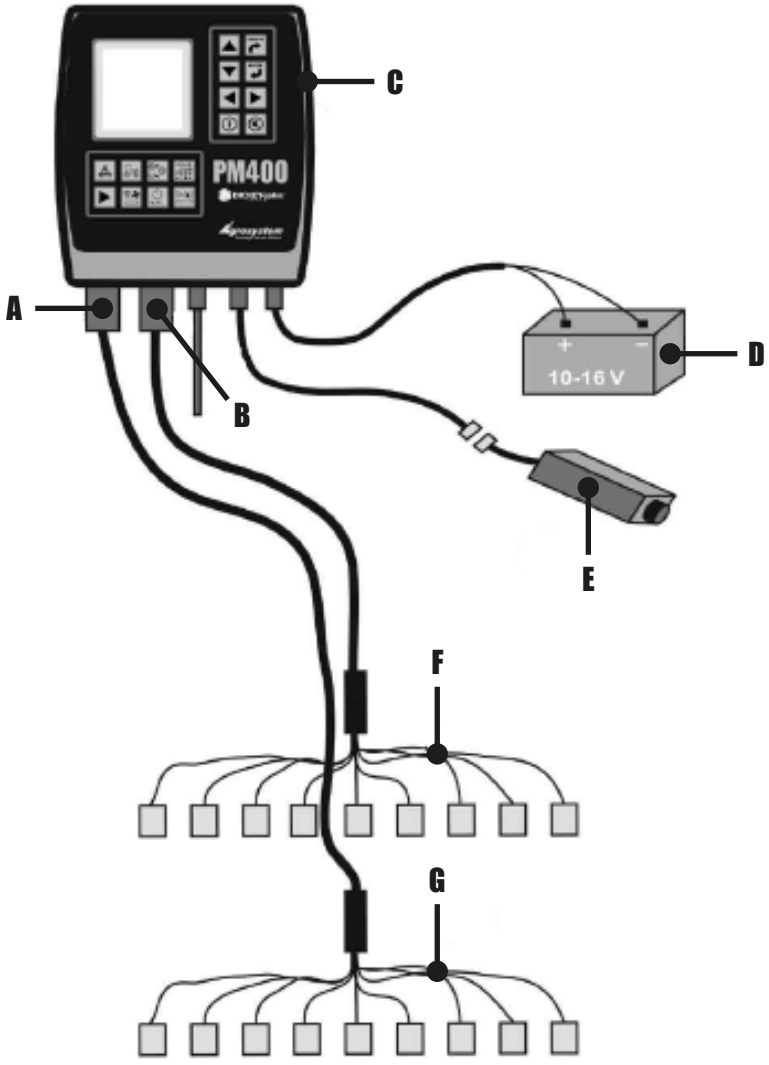
NOTE: The console must not obstruct or interfere with the operation of the tractor.
When mounting on a vertical surface, a strap can be used to retain cables at the bottom of the bracket.

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

▪ PM 400 Manual - Optional

• Installation and configuration - Part I

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.



MONITOR INSTALLATION SCHEME

⚠ ATTENTION

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

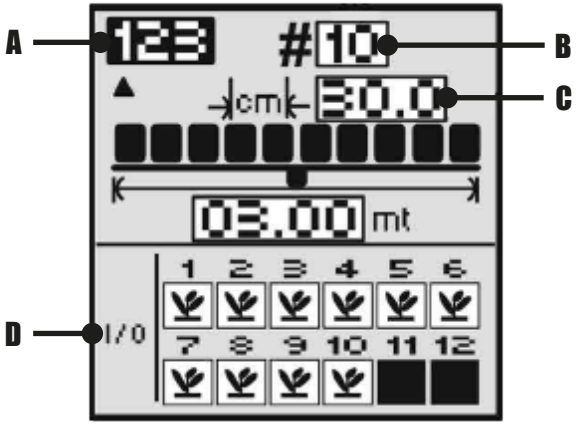
If you have an 11-line planter and a monitor with two electrical harnesses with 12 sensors each: The electrical harness for the seed line sensors must be connected to connection **(A)** and the electrical harness for the fertilizer sensors to connection **(B).**
But if you have an 11-row planter and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

▪ PM 400 Manual - Optional

• Configuration of the Planter - Part I

To select the "Configuration of the Planter" 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 and 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 acccept 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 for seed metering monitoring;

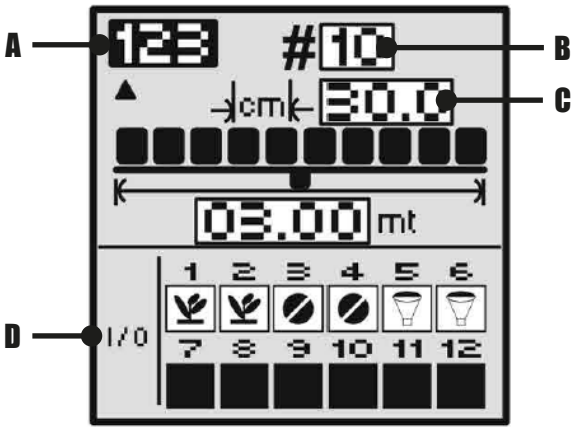
- Used when the sensor is installed on the line, but it is turned off;

- Used for monitoring the fertilizer dosage (flow);

- Used when the line is removed.

▪ PM 400 Manual - Optional

• Configuration of the Planter - Part II



SCREEN:CONFIGURATION OF THE PLANTER

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

• Configuration of the Travel Speed - Part I

To select the Drift Speed Setup tab, press .

To perform a new configuration:

⚠ ATTENTION | **The tractor must be moving when you START the calibration.**

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).**

▪ PM 400 Manual - Optional

• Configuration of the Travel Speed - Part II

02 - Drive 122 meters (400 feet) and press 

to STOP the calibration.

03 - The new calibration factor will be displayed in the window. Press 

to accept this value or 

to reject the value.

At the end of the configuration press 

or  (operation) to return to the PROTECTION SCREEN.

To enter a travel speed constant manually:

01 - Press  highlight the displacement speed constant value (A).

02 - Press 

to modify the constant.

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

04 - Press 

to accept the new number;

When the new values have been entered, press 

or  (operation) to return to the OPERATION SCREEN.

NOTE: It is important to configure the displacement 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 that the calibration number obtained is correct, go to the speed/area/distance screen and verify that the speed indicated on the tractor indicator.

We recommend averaging the values of the 3 calibration constants.

NOTE: Calibration on smooth soil is different from calibration on straw soil.

Whenever planting in a soil different from the one carried out in calibration, run 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.

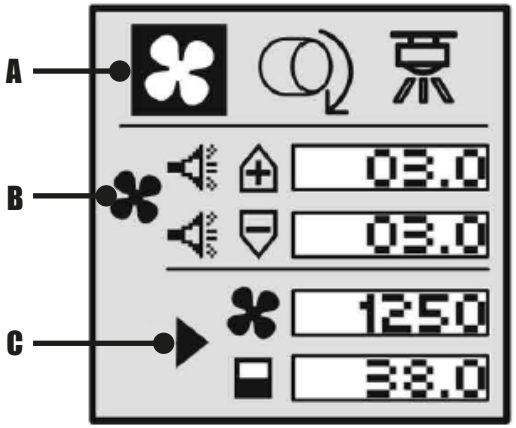
▪ PM 400 Manual - Optional

• Configuration of the acessories - 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 ventilator, shaft, or flow sensor can be monitored with high or low alarm values or no value at all.

• 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, rotate the shaft or fan by the total number of revolutions.

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

04 - Using ◀ ▶, select the number 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.

▪ PM 400 Manual - Optional

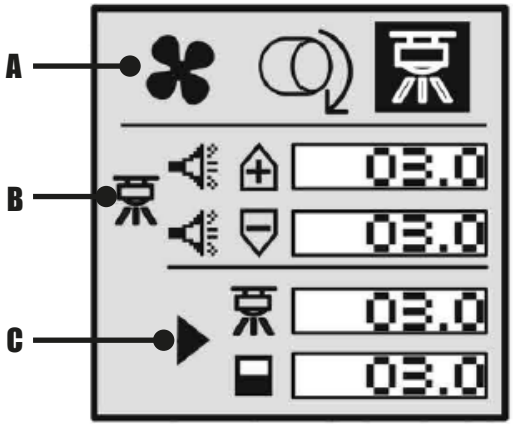
• Configuration of the accessories- Part II

• 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 

. After calibration has started, the button will switch to STOP **(B)** and the factor will start to accumulate.



SCREEN:SPEED CONFIGURATION

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 

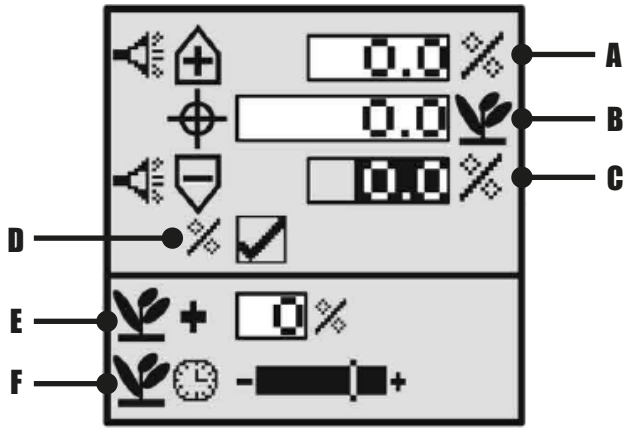
or  (operation) to return to the OPERATION SCREEN.

▪ PM 400 Manual - Optional

• Configuration of 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 can 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 the field (F), swipe right for a high population response rate and 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.

▪ PM 400 Manual - Optional

• Configuration of 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.**

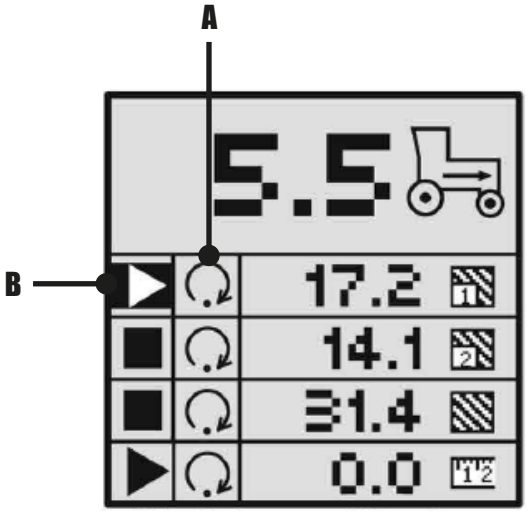
• Speed, area and distance

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 the button  **(B)**;

02 - Start the count by pressing  . After you have started counting, the button will toggle to  (STOP) and the factor will start accumulating;



SCREEN:SPEED, AREA AND DISTANCE

03 - Press  (the count will pause).

04 - Press  again. The factor will accumulate again.

To reset the counter:

01 - Press  to select the (RESET)  button;

02 - Press  .

▪ PM 400 Manual - 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 the 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;

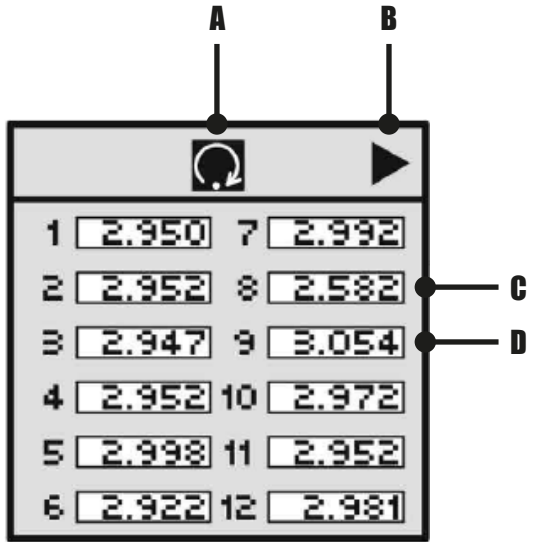
03 - Press 

(the count will pause).

04 - Press 

again. The factor will 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 

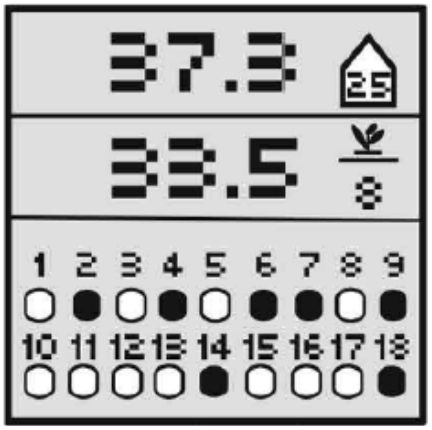
.

▪ PM 400 Manual - Optional

• Configuration of 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 screen, availability, then the keys ▲ ▼ are used to scroll between functions, it is possible to view up to 25 functions. See the example. If 8 functions are selected:

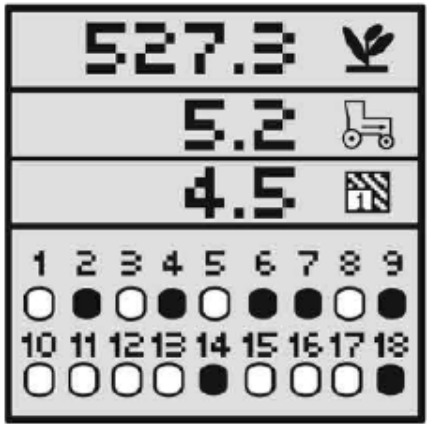
- Average Plant Population.
- Travel Speed.
- Planting Area 1.
- Total Area.
- Fan RPM.
- Maximum/Medium/Minimum Population.
- Seed Spacing.
- Check of Seed Variation by Distance.



SCREEN: TOP DISPLAY

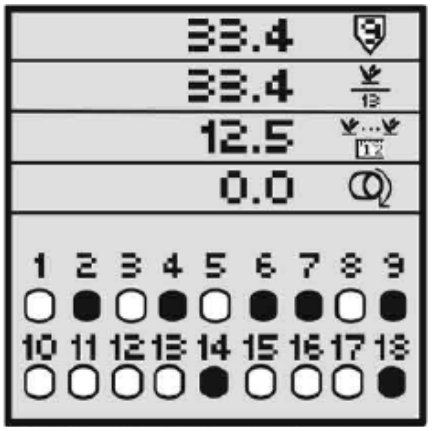
If the screen is set to display 3 functions, the operation screen will display functions 1, 2 and 3.

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



SCREEN:UPPER 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.

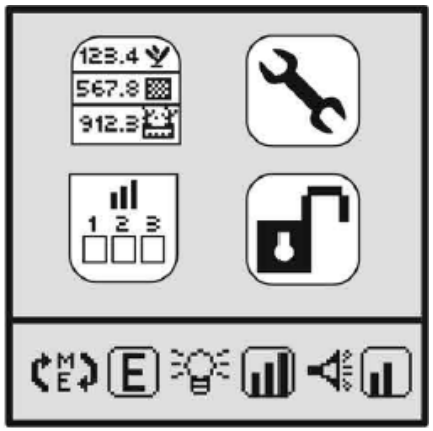


SCREEN:UPPER DISPLAY

▪ PM 400 Manual - Optional

• Number of Functions to display

01 - Press  to enter the display settings screen;

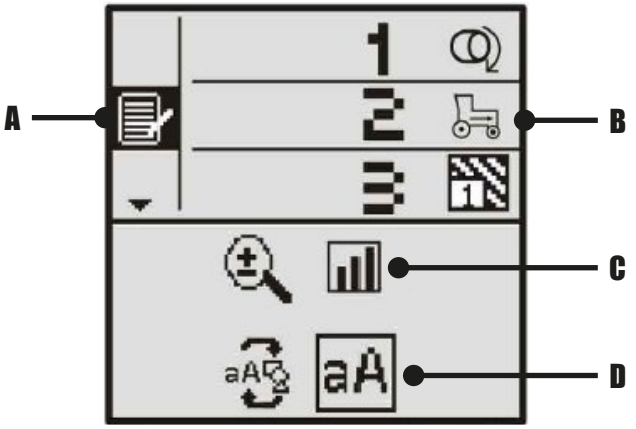


SCREEN: TOP DISPLAY SETTING

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.

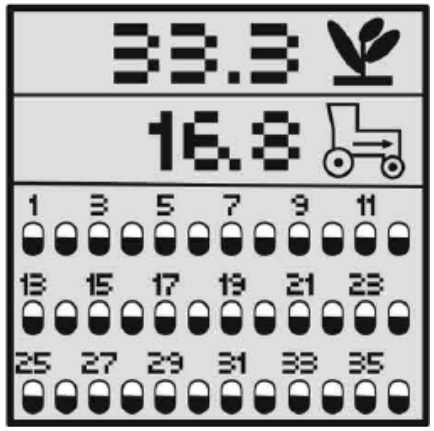
When the new values have been entered, press 

or  (operation) to return to the OPERATION SCREEN.

▪ PM 400 Manual - Optional

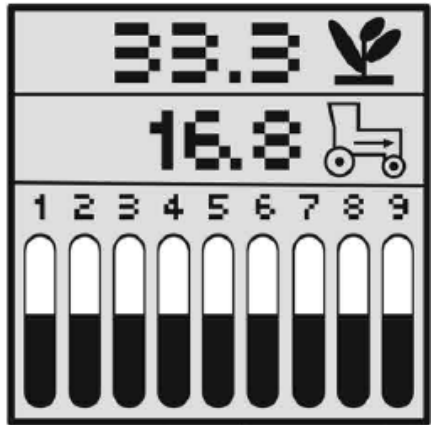
• Configuration of the Display - Lower Half of the Operation Screen

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.



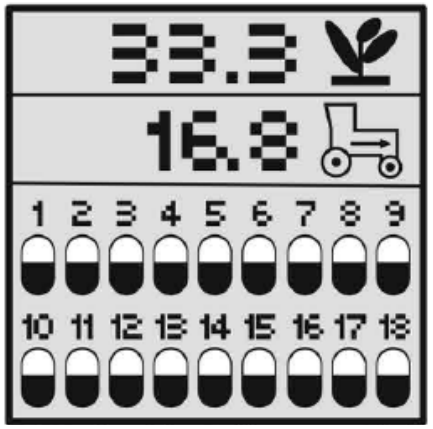
SCREEN: GRAPHIC WITH 36 LINES

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



SCREEN:GRAPH WITH 09 LINES

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



SCREEN: GRAPHIC WITH 18 LINES

▪ PM 400 Manual - Optional

• Indicator type to display

01 - Press  to enter the display configuration screen.

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

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.

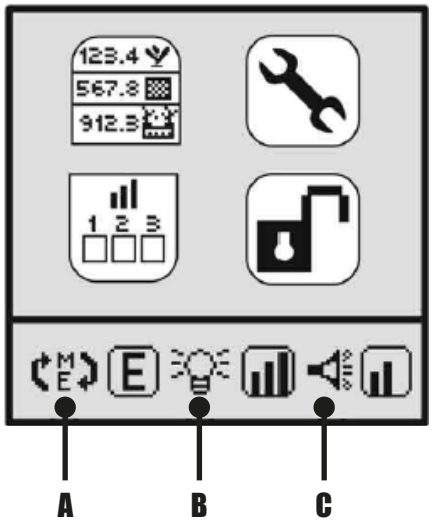
▪ PM 400 Manual - Optional

• Configuration of the Measurement System, Display Lighting and Alarm Volume

Press  to configure the measurement system, the display backlighting, and the volume of the alarms.

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

SCREEN



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

02 - Switch between METRIC and ENGLISH as desired;

03 - Press ENTER to accept the new setting;

04 - Select the display illumination icon **(B)** using ◀ ▶ press ENTER ;

05 - Use ▲ ▼ to select the display's illumination level.There are 03 lighting levels to choose.

06 - Press ENTER to accept the new configuration;

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

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

09 - Press ENTER to select the new configuration.

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

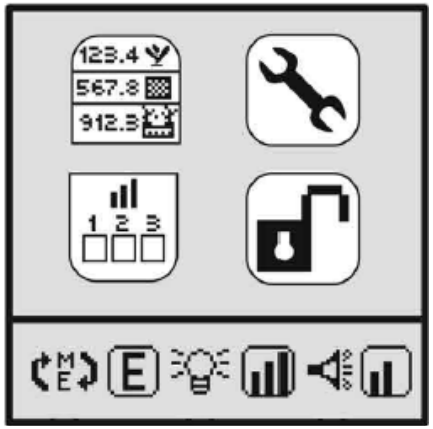
▪ PM 400 Manual - Optional

• Configuration of 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.

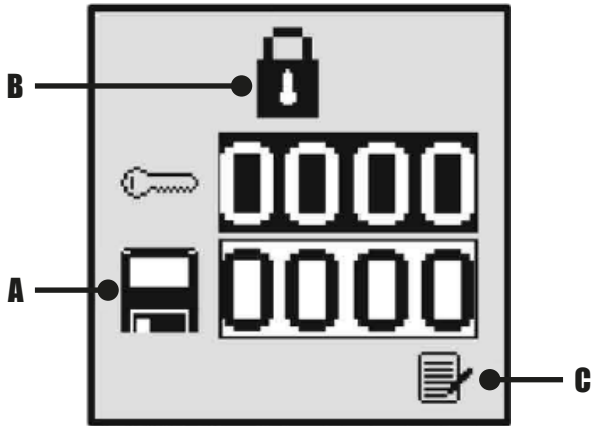
NOTE: A screen list allows the operator to lock screens individually to ensure they are not modified.

Press  to enter display setting screen and choose  :



SCREEN:DISPLAY CONFIGURATION

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



SCREEN: PASSWORD SETTING

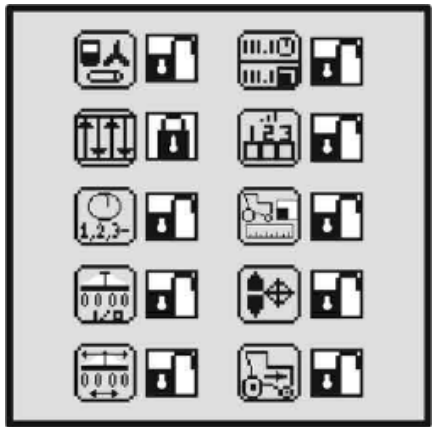
02 - Press  to enter the password;

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

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

▪ PM 400 Manual - Optional

• Configuration of the security password - Part II



SCREEN: PASSWORDS BY FUNCTION

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

06 - Press 

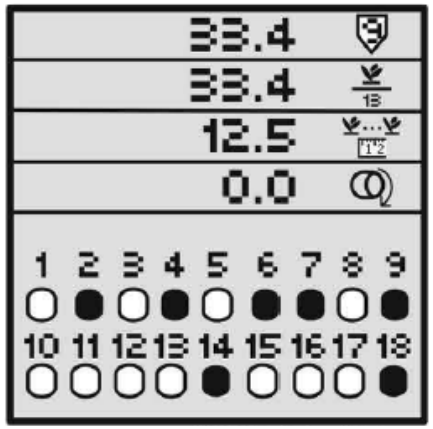
to return to the password screen;

07 - Select the padlock **(c)** and press 

to change 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 configuration, security or auxiliary modes screens, repeatedly pressing the 

key will return the system to the operating 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.

▪ PM 400 Manual - 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.

▪ PM 400 Manual - Optional

• 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 adjustment.

MAXIMUM/AVERAGE/MINIMUM SEED RANGE PER DISTANCE

The function alternates the display in minimum, average and maximum variation every 2 seconds.
When the maximum or minimum ranges are being displayed, 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 planted 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 setting of text/graphics.

▪ Manual PM 400 - Opcional

• 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 setting of text/ graphic.

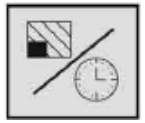
TOTAL PLANTING AREA

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, deending on the text/ graphic setting.

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

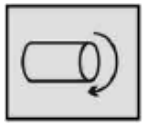
The function shows the area rate per hour in hectares per hour (Ha/h) or acres per hour (AC/h), depending on the unit selected. This function can be identified with a symbol or text, depending on the text/graphic setting.

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.

▪ PM 400 Manual - Optional

• 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 displays 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 setting of text/graphics.

• Alarms

Two audible alarm beeps are emitted during navigation or entry of data indicating some illegal operation or wrong keystroke.
The illegal operation warning screen appears on the display, informing the operator about 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 resuming the planting operation.

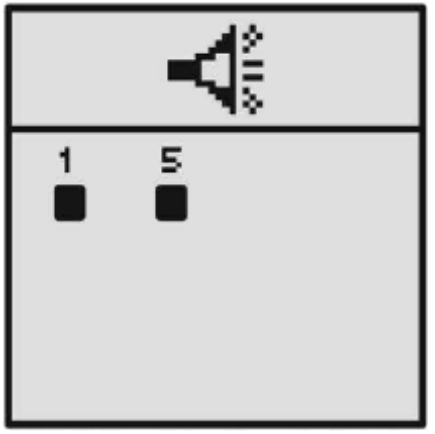
⚠ ATTENTION

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

• Alarm Type - 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.



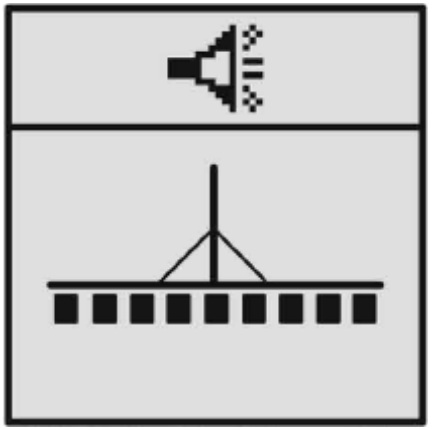
SCREEN: LINE BLOCK

▪ PM 400 Manual - Optional

• Alarm Tyes - Part II

• Failure on All Lines

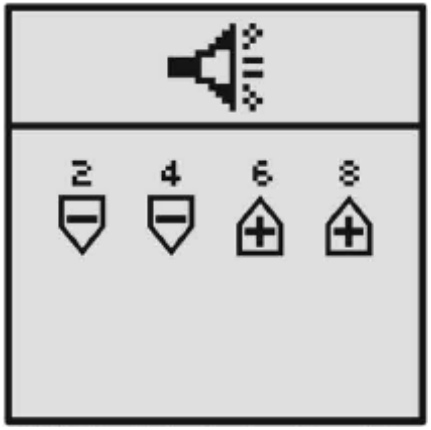
Eight audible alarm beeps are heard and the failure warning screen on all lines will be displayed, which may indicate the planter's lift.



SCREEN: LINE FAILURE

• High/Low Population Limits Exceeded

The alarm emits a whistle-like sound and the alarm warning screen limits exceeded will be displayed.



SCREEN: UPPER AND LOWER LIMITS

Symbols shown on the screen alert you if the limit has been exceeded for  (plus) or for  (minus) and the numbers indicate which seed lines have exceeded the limits.

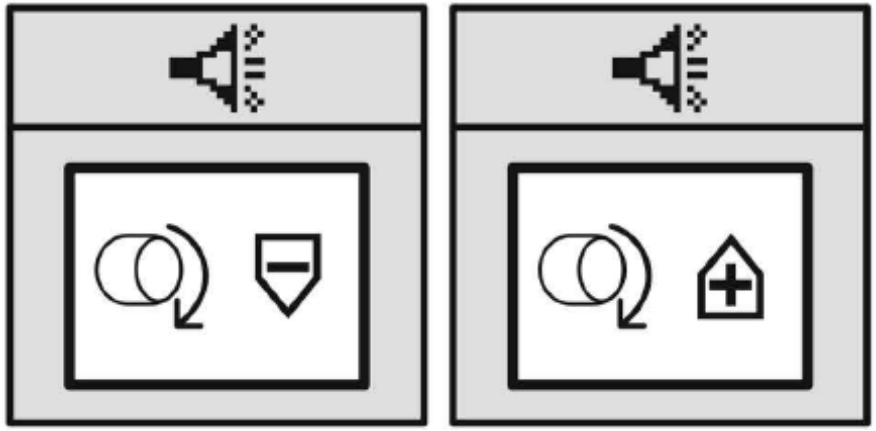
▪ PM 400 Manual - Optional

• Alarm Types - Part III

• Accessory High/Low Limits Exceeded (Optional)

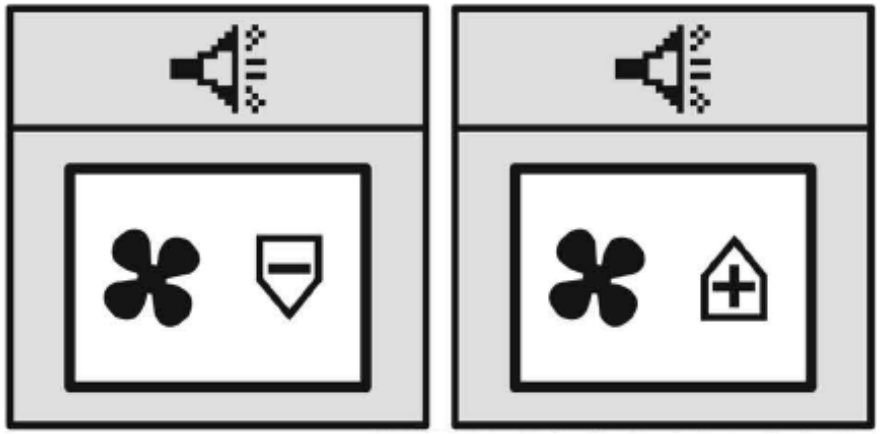
The alarm sounds constantly until the symptom is resolved and the limit exceeded warning screen is displayed:

- Warning display of fan speed limit exceeded;



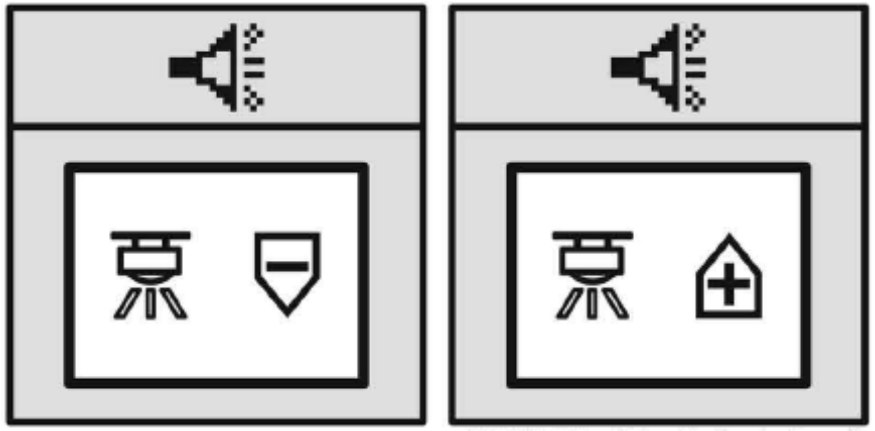
SCREEN: FAN ROTATION LIMIT

- Warning display of shaft rotation limit exceeded;



SCREEN: SHAFT ROTATION LIMIT

- Pressure limit warning display exceeded;



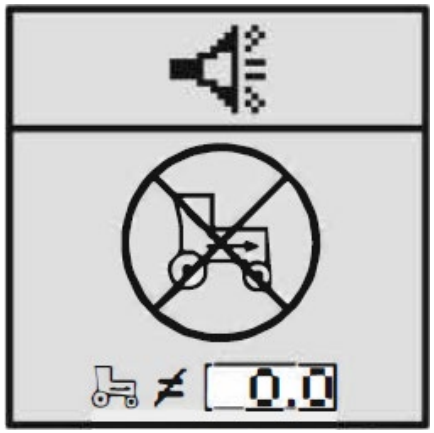
SCREEN: PRESSURE LIMIT

▪ PM 400 Manual - Opcional

• Alarm Types - Part III

• Lack of Travel Speed

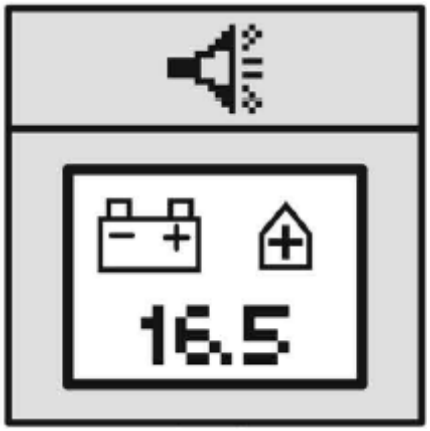
When planting without marking the machine's travel is detected, the alarm sounds until the problem is solved. The travel speed warning screen will be displayed.



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

▪ PM 400 Manual - Optional

• 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.

CAUSA PROVÁVEL: Defective monitor.

AÇÃO CORRETIVA: Contact Agrosystem.

▪ PM 400 Manual - Optional

• Troubleshooting - Part II

ERROR: THE RESERVOIR ALARM DOES NOT SOUND WHEN THE DEPOSIT IS EMPTY.

PROBABLE CAUSE: Reservoir sensor covered with dirt.

CORRECTIVE ACTION: Clean the sensor using the brush provided.

PROBABLE CAUSE: Sensor fault or shorted harness.

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

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosystem.

ERROR: THE RESERVOIR ALARM SOUNDS WHEN THE RESERVOIR IS FULL.

PROBABLE CAUSE: Sensor failure or broken harness.

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

PROBABLE CAUSE: Defective monitor.

CORRECTIVE ACTION: Contact Agrosystem.

▪ Manual PM 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.

ERROR: 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 Agrosystem.

▪ PM 400 Manual - Optional

• Troubleshooting - Part VI

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 Agrosystem.

ERROR: MAXIMUM SPEED EXCEEDED ALARM SOUND.

PROBABLE CAUSE: Maximum travel speed alarm set to slow.

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

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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 Agrosystem.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Presentation

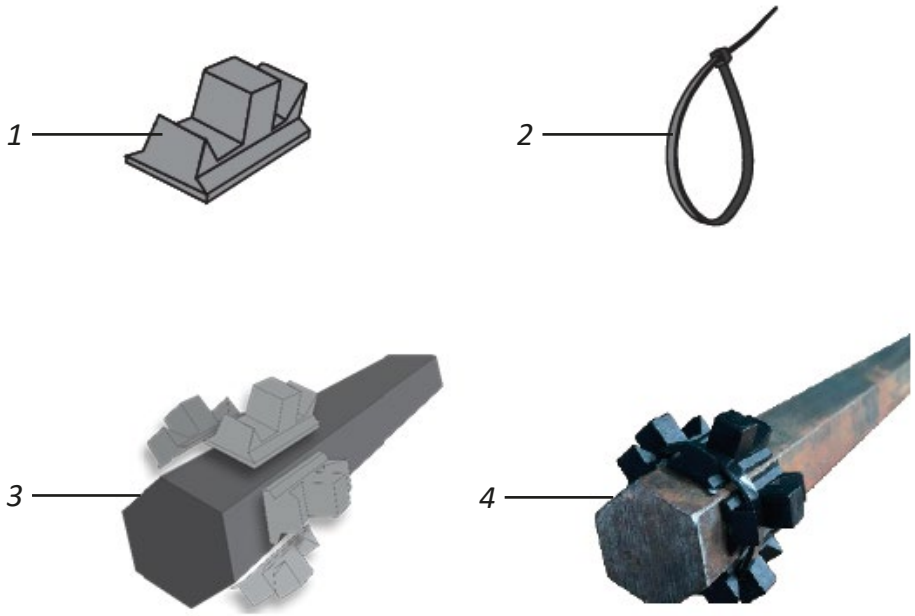
The **ETD** is an electronic device that can be connected to planters, seeders, and fertilizers to assist the operator in configuring the best gear ratio so that the correct dosage of seeds and fertilizers occurs, according to the needs of each area/plot, based on the adjustments previously done in the 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.

⚠ ATTENTION | **To use the ETD (Electronic Dosage Table), consult the instruction manual on the following pages.**

▪ ETD Manual (Eletronic Dosing Table) - Optional

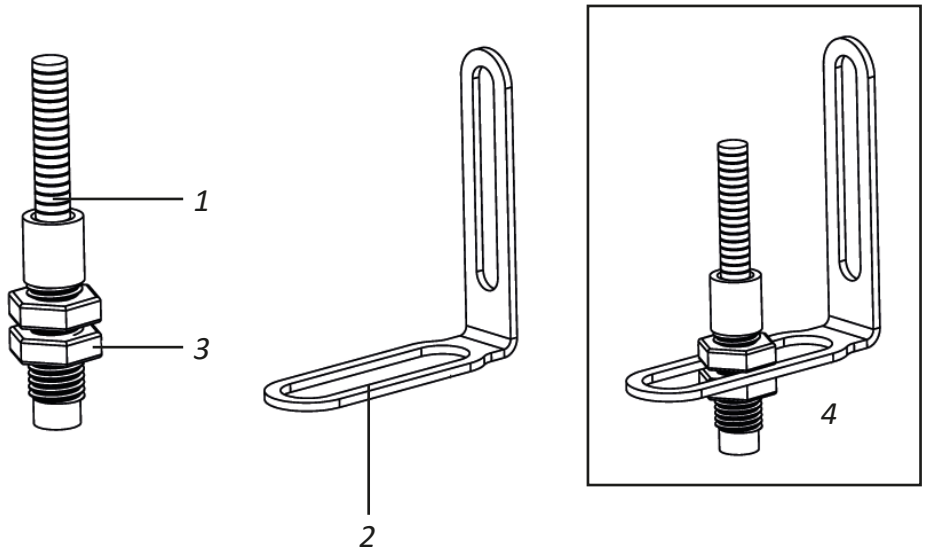
• Assembly of the magnets on the main shaft

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



• Assembly of the speed sensor

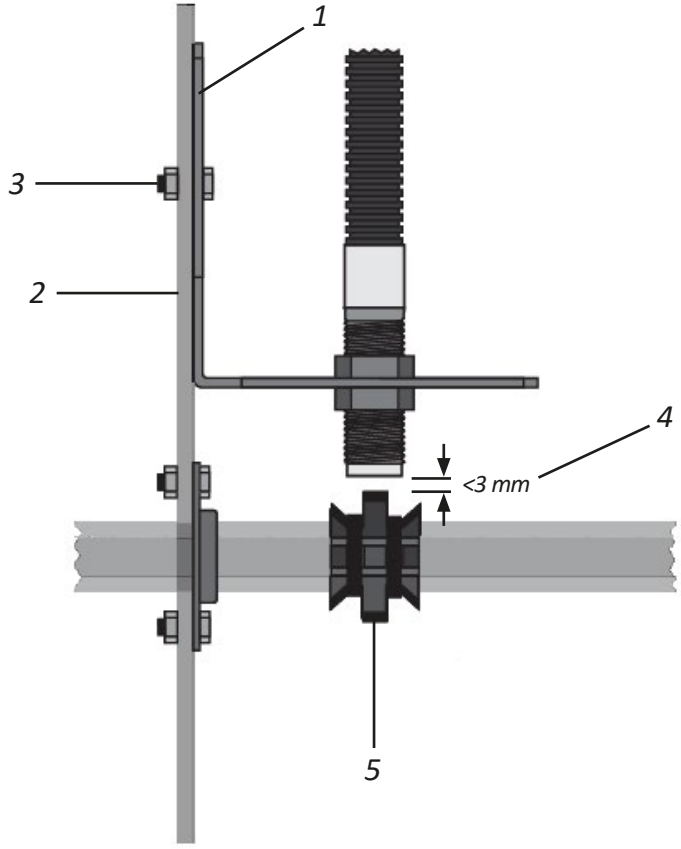
Mount the sensor (1) on the support (2) fixing by the nuts (3) according to the image (4).



▪ ETD Manual (Eletronic 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 shaft (5).



• Identification

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

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

Keys
The and key ▼ and ▲ are used to increase or decrease numerical interface items. The icon with arrows above and below the interface indicates the item to be controlled 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 comer of the interface.**

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Settings menu

The settings menu (1) can be accessed through the Function F key, 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 onthe "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.

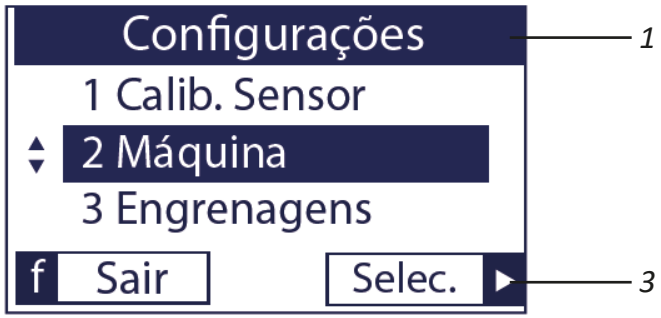
The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the (5) "Ready" key ▶.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the machine's working speed 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 "INSTALLATION OF THE SPEED SENSOR", previous page.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Machine



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

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

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

• Sensor calibration

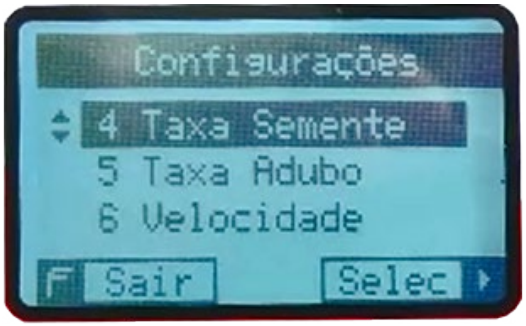
When clicking on "Save" ▶ (6), the system saves the settings and displays the following message.

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

ETD Manual (Eletronic Dosing Table) - Optional

• Seed rate - Part I

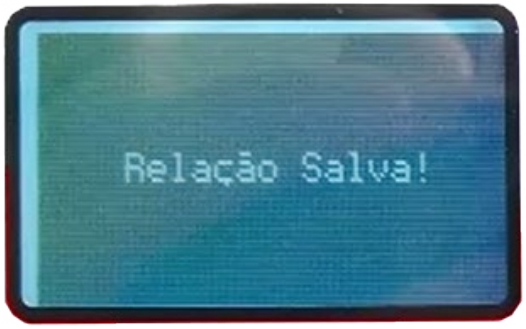
1) Select Seed Rate and click Select.



2) Then select CD Gears and click Select.

3) Then, keep the relationship below.

4) Click Fn to save.



5) Then, select CD Gears and click Select.

6) Then, select Seed Rate and click Select.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Seed rate - Part II

7) Then select Change Disc and click Select.

8) Then, insert the number of holes in the disc according to the crop 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 disc that will work and choose the average value. Example: **B1.**

12) Then type B1 and click Next.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Seed rate - Part III

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

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

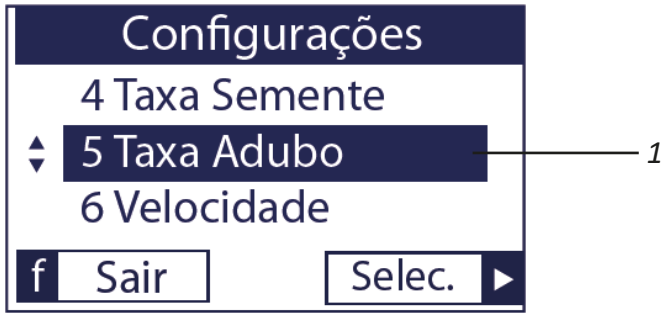
15) **NOTE:** Note that the seed rate value of 4.9 corresponds to the B1 ratio in the SPEED BOX table; if it is different, repeat the previous steps.

16) Then, if the value is correct, click on save.

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

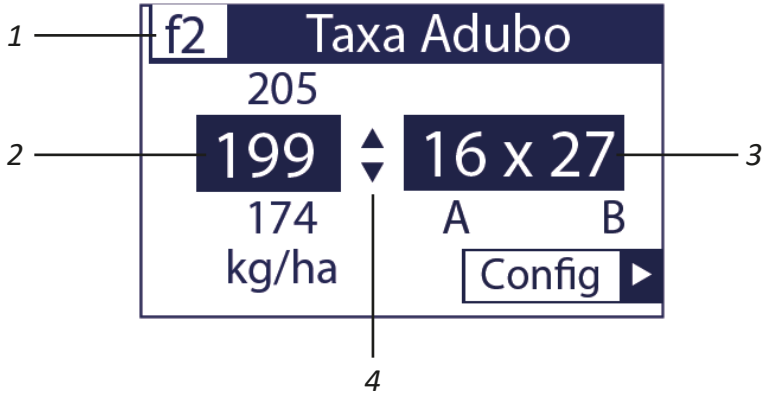
▪ ETD Manual (Eletronic Dosing Table) - Optional

• Fertilizer Rate

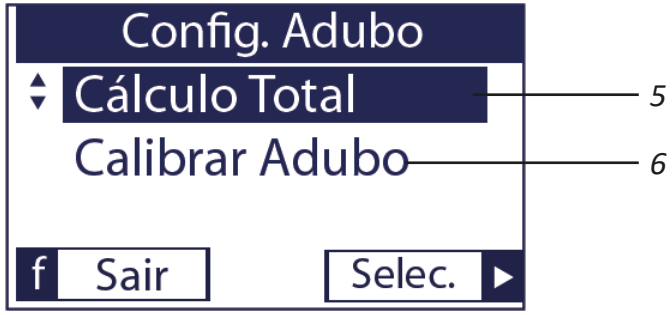


The F2 (1) screen indicates the fertilizer rate (2) in kg per hectare obtained with a specific gear ratio. Fertilizer rates are calculated according to the fertilizer calibration, the gear configuration (3) and the spacing between lines. The ▼and ▲ keys (4) allow the user to navigate between the rate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

Fertilizer Rate: ETD

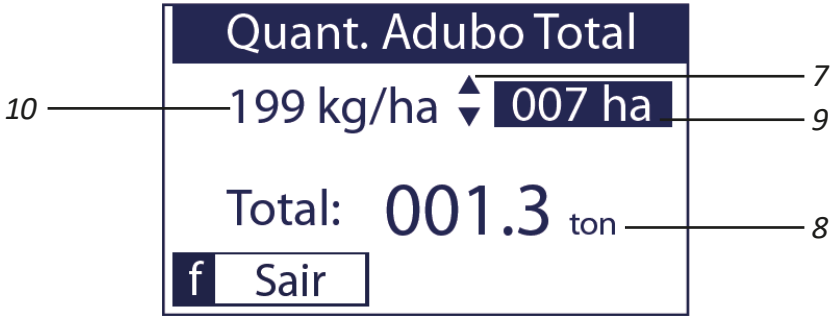


The fertilizer rate menu has two items: Total Calculation (5) and Calibrate Fertilizer (6).



• Total calculation

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

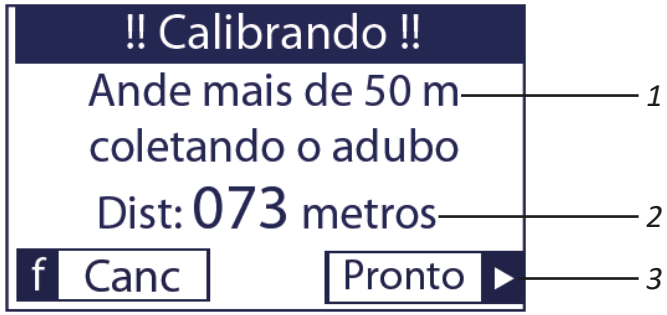


▪ ETD Manual (Eletronic Dosing Table) - Optional

• 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 inform 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 traveled is measured correctly. The distance traveled is displayed instantly (2).



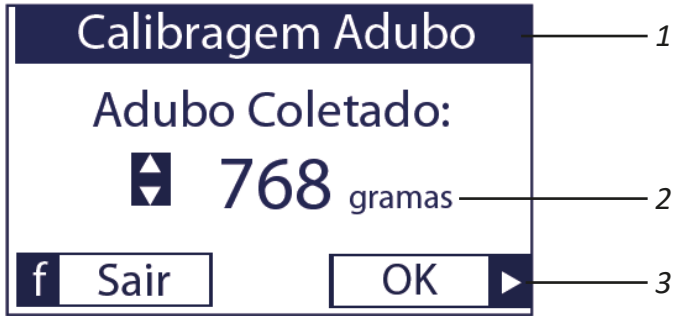
After covering the required distance, click on Ready (3).

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:

▪ ETD Manual (Eletronic Dosing Table) - Optional

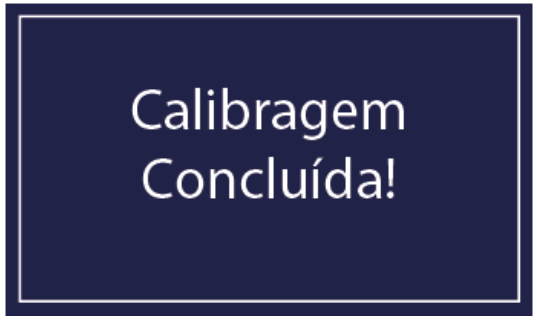
• Calibrate fertilizer- Part II

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.

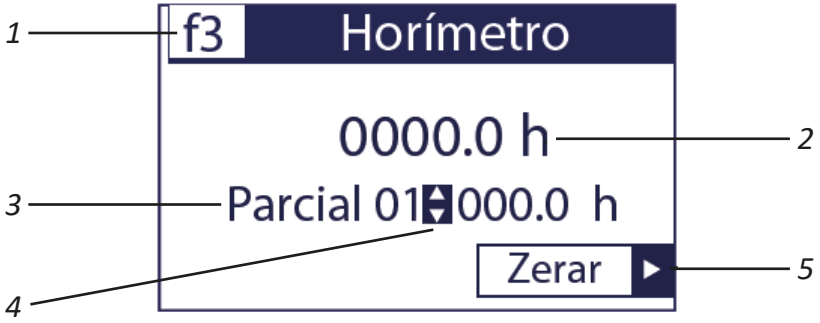


Fertilizer collected, range of values: 10 ~ 9000 grams.

Click on 'OK' (3) the 'calibration completed' message is displayed.



• F3 Hobbs meter



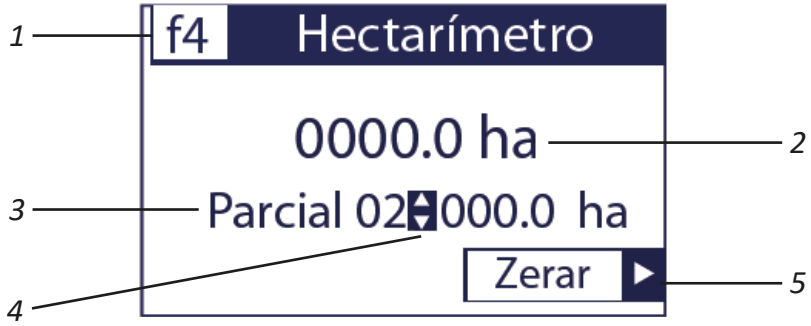
The F3 (1) screen indicates the total number of hours (2) of work with the ETD in three partials (3), which can be related with the ▲▼ (4).

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 turned on. Thus, hours of handling the ETD or traveling with the machine in the transport position will not be counted.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• F4 Hectometer



Screen F4 (1) indicates the total number of hectares worked (2) with the ETD, also in 3 partial ones (3), which can be selected using the keys ▲▼ (4).

• Settings menu - Part I

The settings menu (1) can be accessed via the F function key, 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.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• 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.

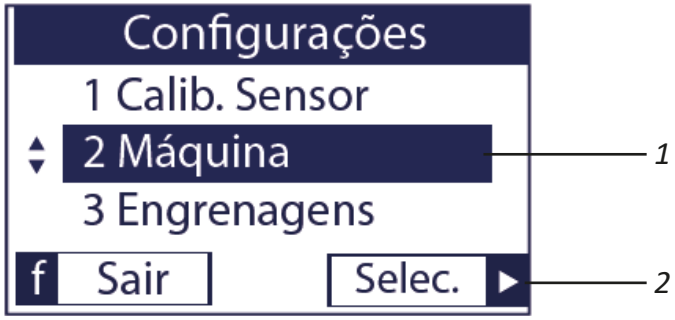
The number of pulses (4) counted by the sensor is shown on the screen. To complete the calibration, the operator must press the (5) "Ready" key ▶.

The calibration of the sensor is important for the ETD to determine the number of hectares worked, the machine's working speed 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 "INSTALLATION OF THE SPEED SENSOR", page 143.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Machine



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

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

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

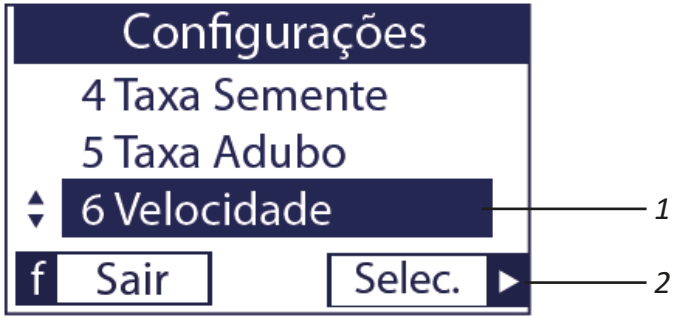
Spacing, range of values: 01 ~ 99 cm.

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

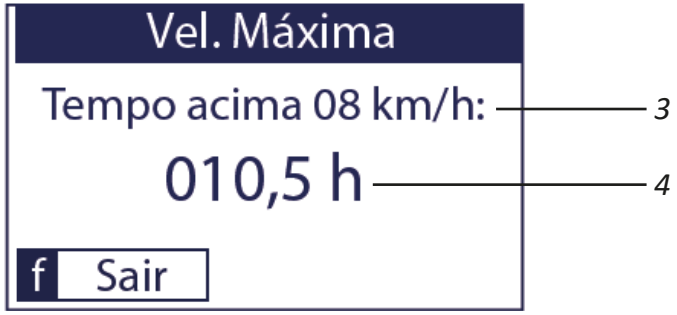
This information is very important for the presentation of the worked hectares and also for the calibration of fertilizer rates.

▪ ETD Manual (Eletronic Dosing Table) - Optional

• Time above maximum speed



By clicking on 'Select.' ▶ (2) in the 'Speed' setting (1) it will be shown for how many hours (4) the machine has been working above the limit speed (3).



▪ Identification

• Identification plate

To consult the parts catalog or request technical assistance from Baldan, always indicate the model (01), serial number (02) and manufacturing date (03), which can be found on the identification plate of your **SPE TOP LINE FLEX AIR.**

⚠ ATTENTION

The drawings contained in this Instruction Manual are for illustrative purposes.

CONTACT

If in doubt, never operate or handle your equipment without contacting Post Sales.
Telephone: 0800-152577
email: posvenda@baldan.com.br

PUBLICATIONS

Code: 60550108006 | CPT: SPEAIR12519A

• Product identification

Make the correct identification of the data below, to always have information on the service life of your seeder.

Owner: _____

Review: _____

Farm: _____

City: _____

State: _____

Warranty certificate No.: _____

Implement: _____

Serial No.: _____

Date of purchase: _____

Invoice: _____

PEÇAS® ORIGINAIS BALDAN
ORIGINAL PARTS · PIEZAS ORIGINALES

Notes:

Notes:

▪ Certificate of warranty

BALDAN IMPLEMENTOS AGRÍCOLAS S/A ensures the dealer normal performance of the implement for a period of six (6) months as of the delivery date on the retail invoice to the first final consumer. During this period, **BALDAN** undertakes to repair defects in material and/or of manufacture of its liability, including labor, freight and other expenses of the dealer's liability.

In the warranty period, request and replacement of eventual defective parts shall be made to the dealer of the area, who will submit the faulty piece for **BALDAN** analysis.

When this procedure is not possible and the resolving capacity of the dealer is exhausted, the dealer will request the support of **BALDAN** Technical Assistance through a specific form distributed to dealers. After analyzing the replaced items by Baldan Technical Assistance, and concluding that it is not a warranty, then the dealer will be responsible for the costs related to the replacement; as well as material expenses, travel including accommodation and meals, accessories, lubricant used and other expenses arising from the call out to Technical Assistance, and Baldan company is authorized to carry the respective invoice in the name of the resale.

Any repair carried in the product within the dealer warranty deadRow will only be authorized by **BALDAN** upon previous budget presentation describing parts and work to be performed.

The product is excluded from this term if it is repaired or modified by representatives not belonging to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product. This warranty is void where it is found that the defect or damage is caused by 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, cardan, hydraulic components, etc., which are equipment guaranteed by their manufacturers. Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, grounds for termination of a purchase agreement, or for indemnification of any nature.

BALDAN reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured.

▪ Inspection and delivery certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization and inspected in its entirety in accordance with the manufacturer's requirements.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and maintenance care.

I acknowledge that I have been informed of the applicable warranty terms and instructed on the proper use and maintenance of the implement.

Implement: _____ Serial No.: _____

Date: _____ Tax No.: _____

Resale: _____

Phone: _____ Zip Code: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

Email: _____

Sale Date: _____

Signature / Resale Stamp _____

1st copy - Owner

▪ Inspection and delivery certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization and inspected in its entirety in accordance with the manufacturer's requirements.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and maintenance care.

I acknowledge that I have been informed of the applicable warranty terms and instructed on the proper use and maintenance of the implement.

Implement: _____ Serial No.: _____

Date: _____ Tax No.: _____

Resale: _____

Phone: _____ Zip Code: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

Email: _____

Sale Date: _____

Resale Signature / Stamp _____

2nd copy - Resale

▪ Inspection and delivery certificate

SERVICE BEFORE DELIVERY: This implement has been carefully prepared by the sales organization and inspected in its entirety in accordance with the manufacturer's requirements.

DELIVERY SERVICE: The user has been informed of the current warranty terms and instructed on the use and maintenance care.

I acknowledge that I have been informed of the applicable warranty terms and instructed on the proper use and maintenance of the implement.

Implement: _____ Serial No.: _____

Date: _____ Tax No.: _____

Resale: _____

Phone: _____ Zip Code: _____

City: _____ State: _____

Owner: _____

Phone: _____

Address: _____ Number: _____

City: _____ State: _____

Email: _____

Sale Date: _____

Resale Signature / Stamp _____

3rd counterpart - Manufacturer (Please send completed within 15 days)

1.74.05.0059-5

AC MATÃO
ECT/DR/SP

RESPONSE CARD

NO STAMPING IS REQUIRED

THE STAMP WILL BE PAID BY:

BALDAN

BALDAN IMPLEMENTOS AGRÍCOLAS S/A.

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

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

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

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

e-mail: export@baldan.com.br

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