# SP Topografic

## Speed Box

## Series 4500 to 9500


# Instructions Manual

BIA® Baldan

www.baldan.com.br

# INTRODUCTION

We thank you for your preference and wish to congratulate you on your excellent choice you just made, as you purchased a product manufactured with the ***BALDAN IMPLEMENTOS AGRÍCULAS S/A*** technology.

This manual will instruct you in the necessary procedures ranging from your purchase to operating procedures for utilization, safety, and maintenance of the equipment.


**BALDAN** guarantees the delivery of this implement to the reseller complete and in perfect operating conditions.

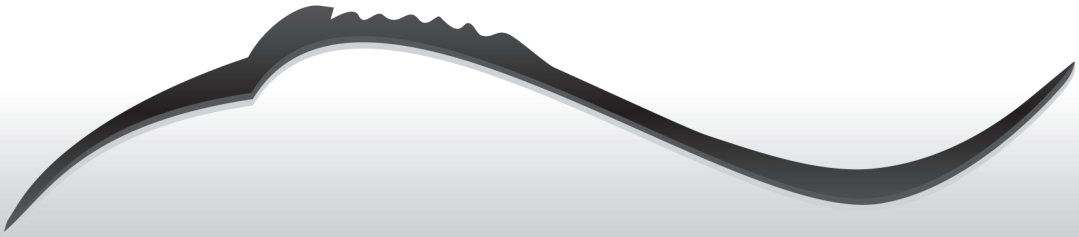
The reseller is held responsible for the storage and conservation during the period it is in his/her possession, and even for the assembly, retightening, lubrication, and overall revision.

The reseller must instruct the customer on maintenance, safety, its obligations regarding any eventual technical support, strict adherence to the warranty agreement and reading of the manual at the time of technical delivery.

Any request for warranty technical support service, must be made at the reseller where the implement was purchased.

We reiterate the necessity for careful reading of the warranty certificate and adherence to all the items in this manual, as that will increase the useful lifetime of your implement.

# Instruction Manual



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## PRODUCT WARRANTY

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

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

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

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

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

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

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

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

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

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

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

# WARRANTY

# OVERALL INFORMATION

## THE OWNER

**BALDAN IMPLEMENTOS AGRÍCOLAS S/A,** shall not be held responsible for any damages caused by an accident arising from its improper or incorrect usage, transport, or storage of its implement, whether it is by negligence and/or inexperience of any party.

Only personnel who are completely knowledgeable of tractors and the implement are capable of transporting and operating them.

**BALDAN** shall not be held responsible for any damages caused by unforeseeable or similar situations when routinely operating the implement.

***Incorrect handling of this equipment can result in serious or fatal accidents. Before starting to operate the equipment, carefully read the instructions contained in this manual. Certify that the person who is responsible for operating it has been instructed regarding safe and correct handling. Also, certify that the operator has read and understood the instruction manual of this product.***

**NR-31 - SAFETY AND HEALTH STANDARD FOR WORKING IN AGRICULTURE, FORESTRY AGRICULTURE, FORESTRY EXPLOITATION, AND AQUACULTURE.**

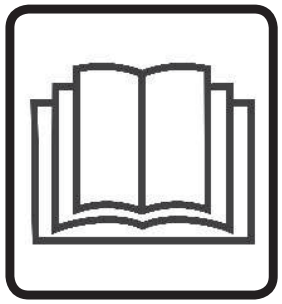
***The purpose of this Regulation Standard is to establish precepts on health and safety in the occupational environment to be abided by in the organization and occupational environment, so that they are compatible with the planning and performance of agricultural, livestock, forestry, forestry exploitation, and aquiculture activities.***

**MR. OWNER OR EQUIPMENT OPERATOR.**
***Carefully read and comply with the provisions in NR-31.***

***For further information, consult the site and completely read NR-31.***
***http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm***

*THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING IN THIS MANUAL, WHENEVER THE READER FINDS IT, CAREFULLY READ THE FOLLOWING MESSAGE AND PAY ATTENTION REGARDING THE POSSIBILITY OF PERSONAL ACCIDENTS.*

## CAUTION



- Carefully read the instructions to know the recommended safety practices.

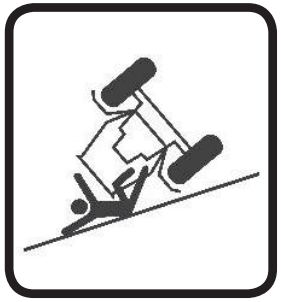
## CAUTION

- Only start to operate the tractor, when the operator is property seated and wearing the latched seat belt.

## CAUTION

- Do not operate the tractor if the front is light. If there is a tendency for lifting, then add weights or ballasts on the front wheels.

## CAUTION



- There are risks of serious injuries by tipping over when working on sloped terrain.
- Do not operate at excessive speeds.

## CAUTION

- Do not transport people on the tractor or equipment.

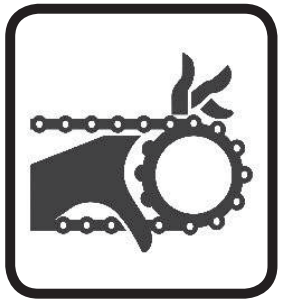
## CAUTION

- Before performing any maintenance on the equipment, certify it is properly stopped in order to avoid being run over.

## SAFETY STANDARDS

# SAFETY STANDARDS

## ⚠ CAUTION

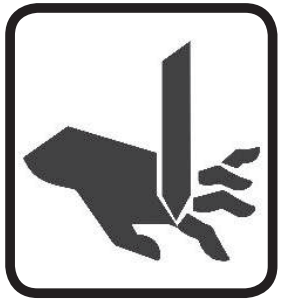


- Whenever doing any maintenance on the seeder, deactivate the ratchets.
- Do not make adjustments on the seeder when it is moving.

## ⚠ CAUTION

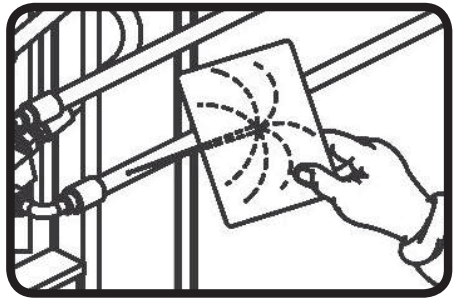
- The hydraulic oil operates pressurized and can cause serious injuries, in case of leakage. Periodically verify the condition of the hoses. If there are any signs of leakage, replace them immediately.
- Before connecting or disconnecting hydraulic hoses, release the pressure from the system, activating the control when the tractor is turned off.

## ⚠ CAUTION



- Keep away from the active seeder elements (discs), they are sharp and can cause accidents.
- Whenever performing any work on the discs, wear safety gloves on your hands.

## ⚠ CAUTION



- Whenever looking for any possible leakage on the hoses, use a piece of cardboard or wood, and never your hands.
- Avoid letting the fluid come in contact with your skin.

⚠ *THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING IN THIS MANUAL, WHENEVER THE READER FINDS IT, CAREFULLY READ THE FOLLOWING MESSAGE AND PAY ATTENTION REGARDING THE POSSIBILITY OF PERSONAL ACCIDENTS.*

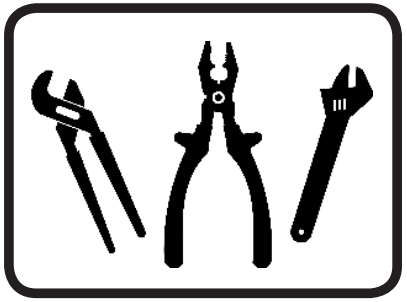
## CAUTION

- Whenever operating the seeder do not let people stay on the machine.
- Do not stay on the platforms when the seeder is moving.

## CAUTION


- Do not drink water from the storage compartment, as it is improper for human consumption "Non-potable Water!"
- Ignoring this warning can cause risks to one's health.

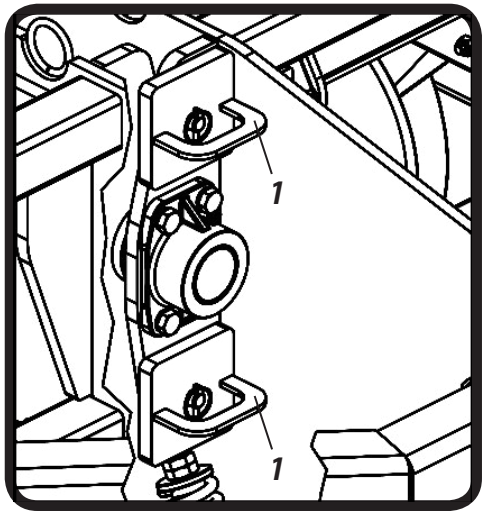
## CAUTION



- Do not make adjustments on the seeder when moving.
- Whenever performing any work on the seeder, turn off the tractor.

*THIS SYMBOL INDICATES AN IMPORTANT SAFETY WARNING IN THIS MANUAL, WHENEVER THE READER FINDS IT, CAREFULLY READ THE FOLLOWING MESSAGE AND PAY ATTENTION REGARDING THE POSSIBILITY OF PERSONAL ACCIDENTS..*

## CAUTION



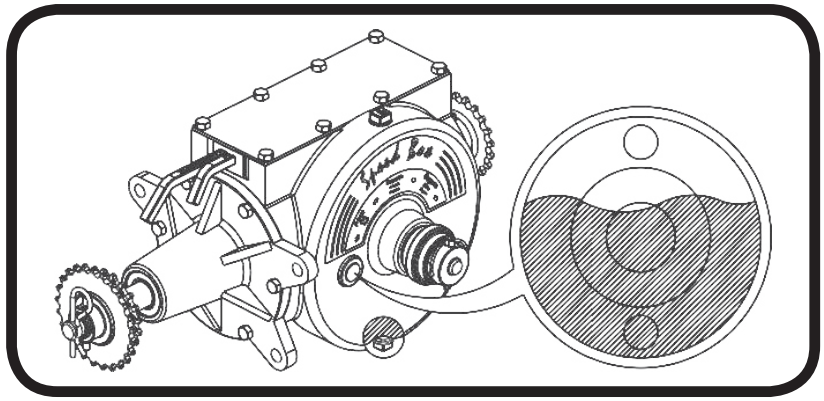

- Use the fastening plates (1) on the frames when hoisting the seeder.
- Ignoring this warning can cause serious accidents or damages to the seeder.

**SEE PAGE 31, FIGURES 18**

## SAFETY STANDARDS

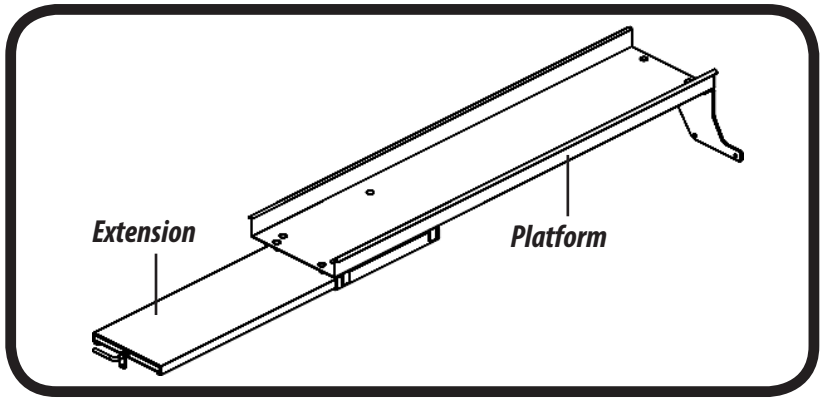
# SAFETY STANDARDS

## CAUTION



- Verify the oil level daily.
- Change the Speed Box oil after the first 30 hours of operation, and thereafter every 1500 hours, always using ISO VG 150 mineral oil at 40º C (1.8 liters of oil is utilized for filling the box).
- Utilize only OEM fuses, as their hardness is controlled.

## CAUTION




- Utilize the platform extension only after providing support for the loading trailer.
- Ignoring this warning can cause damages to the seeder, serious accidents, or even death.

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01 - ⚠ Do not let people stay too close or on it, when operating the equipment.

02 - ⚠ Whenever performing any assembly and disassembly work on the discs, wear safety gloves on your hands.

03 - ⚠ Do not wear loose clothing, and it can get stuck in the equipment.

04 - ⚠ The operator must be sitting in the operator's seat and be completely aware of correct handling and safety for the tractor as well as the implement, when operating the tractor engine. Always place the gear shift in the neutral position, turn off the power take-off and place the hydraulic controls in the neutral position.

05 - ⚠ Do not turn on the engine in a closed place or without proper ventilation, as the gases from the exhaust are harmful to health.

06 - ⚠ When maneuvering the tractor towards the implement coupler, certify there is enough space and no people are nearby. Always maneuver at a reduced speed and be prepared to brake if there is any emergency.

07 - ⚠ Do not make any adjustments when the implement is operating.

08 - ⚠ When working on sloped terrains, proceed with caution, and always maintain necessary stability. In case, there is any loss of balance, reduce acceleration and turn the tractor wheels towards the sloped side of the terrain.

09 - ⚠ Drive the tractor at compatible safe speeds, especially on uphill or downhill slopes. Always keep the tractor engaged.

10 - ⚠ When driving the tractor on highways, keep the brake pedals interconnected and utilize safety signalization.

11 - ⚠ Do not operate the tractor if the front is light. If there is any tendency for the front to lift, add weights to the front or front wheels.

12 - ⚠ When leaving the tractor, engage the gearshift in neutral and press the parking brake.

13 - ⚠ Drinking alcoholic beverages or some medications can cause decreased reflexes and modify the physical condition of the operator. For this reason, never operate the equipment, under the influence of these substances.

14 - ⚠ Read or explain the above procedures to any user who is illiterate.

*In case of doubts/questions, consult with the After Sales department*
*Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br*

## WARNINGS

# COMPONENTS

## SP TOPOGRAFIC
## PRECISION SEEDER

**1 -** Central frame
**2** – Left side frame
**3** – Right side frame
**4** – Coupler adjustment plate
**5** – Coupler head
**6** – Cutting disc
**7** – Speed Box
**8** – Non-potable water storage compartment
**9** – Main valve
**10** – Tool box
**11** – Support foot
**12** – Marker cylinder
**13** – Fertilizer double disc
**14** – Tire
**15** – Ladder
**16** – Seed double disc
**17** – Depth limiting wheel
**18** – "V" Wheel
**19** – Platform
**20** – Seed Storage Compartment
**21** – Platform Handrail
**22** – Fertilizer Storage Compartment
**23 –** Marker Disc
**24 –** Marker

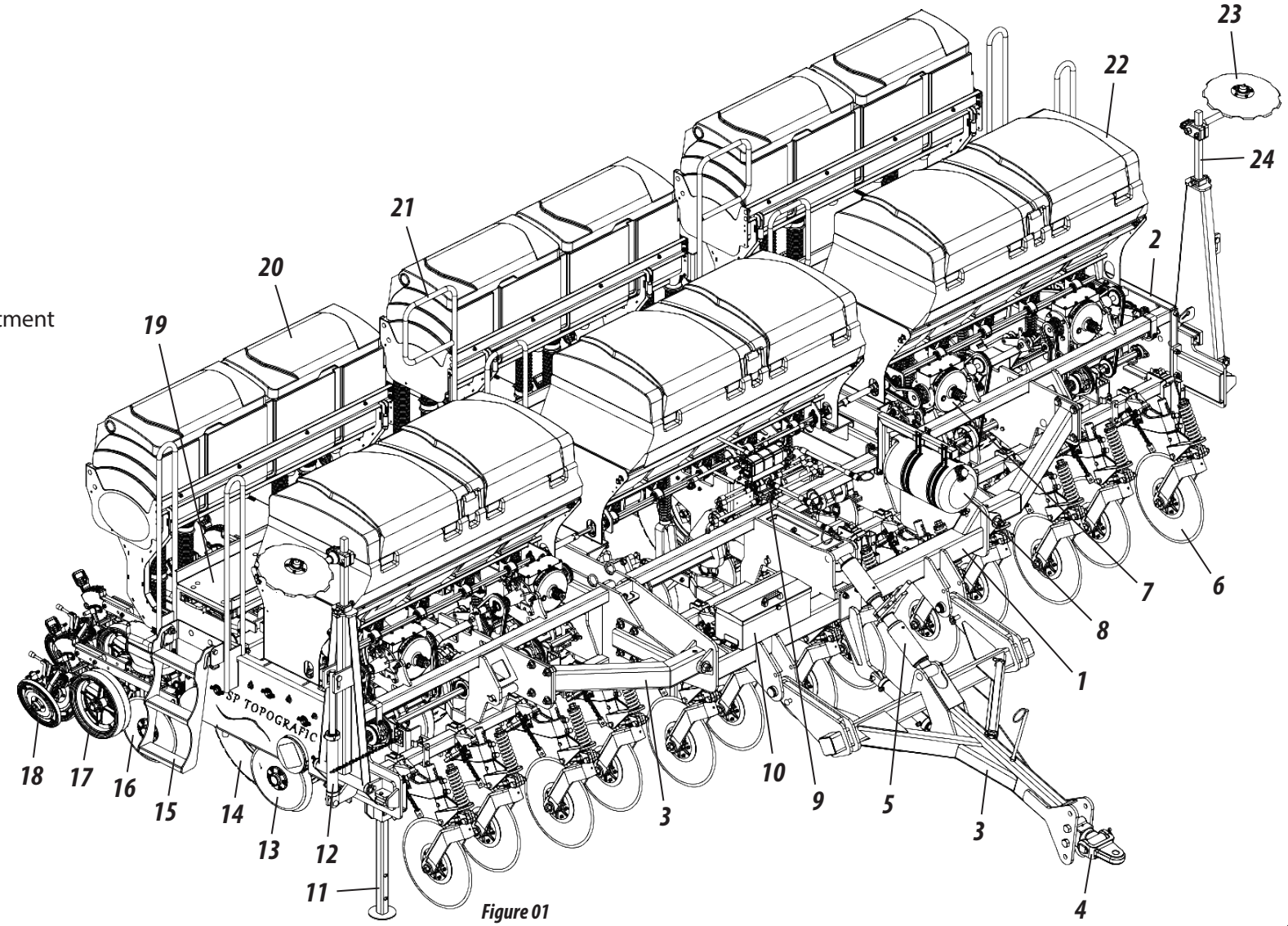



*Figure 01*

*Table 01*

| Model | Nr of Rows | Useful Width (mm) | Total Width (mm) | Operating Width (mm) | Fertilizer Storage Capacity (L) | Seed Storage Capacity (L) | Number of Wheels (unit) | Approximate Weight (kg) | Approximate Power (Hp) |
|---|---|---|---|---|---|---|---|---|---|
| SP TOPOGRAFIC 4500 | 11 | 4500 | 5300 | 4950 | 1650 | 715 | 4 | 5700 | 105 - 130* |
| SP TOPOGRAFIC 5500 | 13 | 5400 | 6400 | 5850 | 1860 | 845 | 6 | 7745 | 130 - 150* |
| SP TOPOGRAFIC 6500 | 15 | 6300 | 7100 | 6750 | 2160 | 975 | 6 | 7900 | 145 - 180* |
| SP TOPOGRAFIC 7500 | 17 | 7200 | 8400 | 7650 | 2610 | 1105 | 8 | 9000 | 160 - 190* |
| SP TOPOGRAFIC 8500 | 19 | 8100 | 8900 | 8550 | 2920 | 1235 | 8 | 9400 | 175 - 220* |
| SP TOPOGRAFIC 9500 | 21 | 9000 | 9800 | 9450 | 3240 | 1365 | 8 | 10000 | 190 - 240* |

*Tires (mm) ..... 700x16*
*Space between rows (mm) ..... 450*
*Transport width (mm) ..... 6500*

*(*) Approximate power (hp) depends on standard situations for planting, which can depend on variations according to the type of soil, topography, etc.*

*Baldan reserves the right to change or improve the technical characteristics of its products, without previous notice, and without any obligation to apply to previously manufactured products. The technical specifications are approximate and based on normal operating conditions.*

## TECHNICAL SPECIFICATIONS

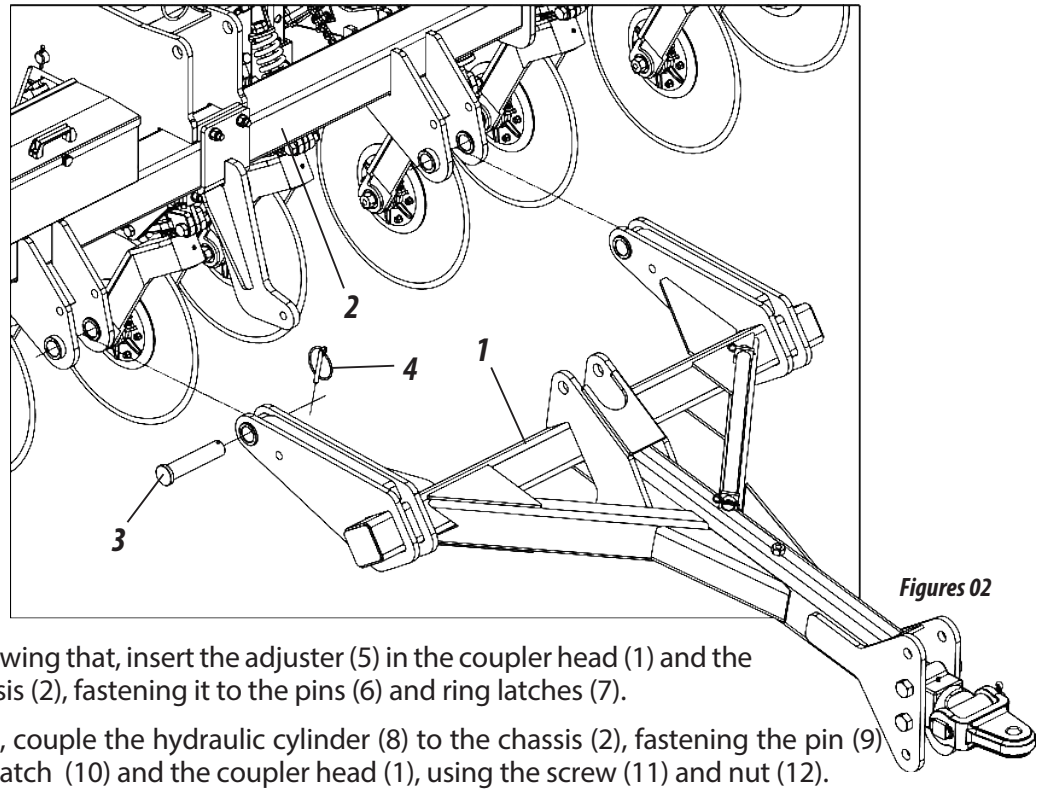
# ASSEMBLY

The **SP TOPOGRAFIC** is shipped from the factory semi-assembled, as just some components need to be assembled as explained below:

## COUPLER HEAD ASSEMBLY (FIGURES 02)

Proceed as follows to assemble the **SP TOPOGRAFIC** seeder (1) coupler head:

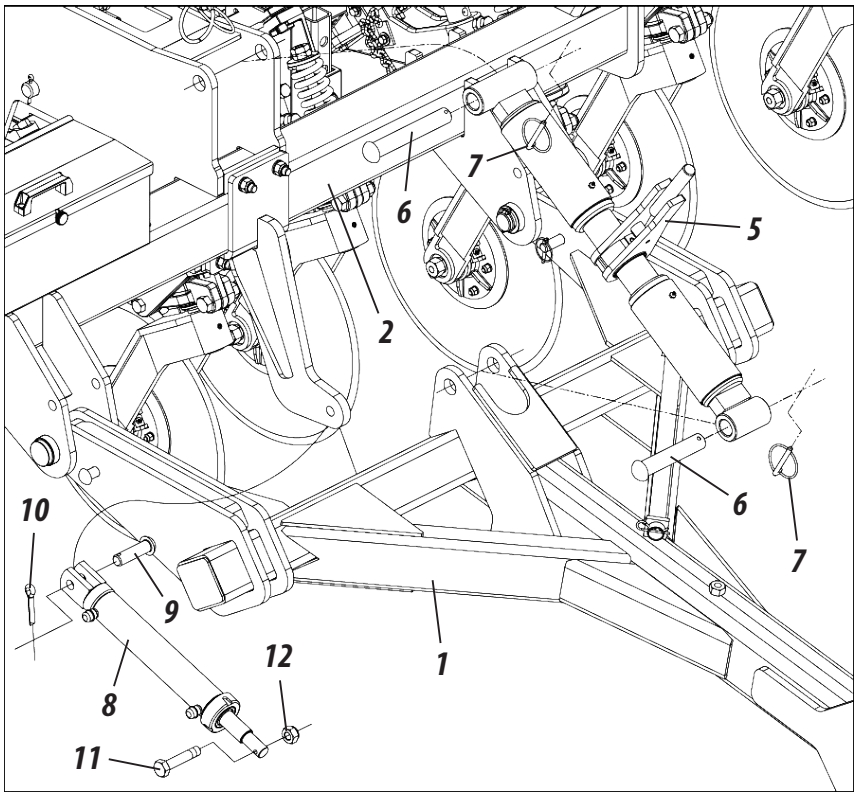
1- Couple the coupler head (1) to the chassis (2), fastening it using the pins (3) and ring latch (4).




*Figures 02*

2- Following that, insert the adjuster (5) in the coupler head (1) and the chassis (2), fastening it to the pins (6) and ring latches (7).

3- After, couple the hydraulic cylinder (8) to the chassis (2), fastening the pin (9) and latch (10) and the coupler head (1), using the screw (11) and nut (12).




**IMPORTANT**

***Before starting to assemble the coupler head (1), look for an ideal location to facilitate the identification of components and the assembly of the coupler head.***

**CAUTION**

***Only couple the hoses and the quick couplers to the hydraulic cylinder (8) when articulating the coupler head (1). Before articulating the coupler head (1), remove the adjuster (5). Ignoring this warning can cause damages, serious accidents, or even death.***

## COMPACTOR WHEEL ASSMEBLY (FIGURE 03)

Assemble the "V" wheel support (1) proceed in the following manner:

1- Couple the "V" wheel support (1) in the same path as the depth wheel (2), placing the bushings (3), fastening them using the screw (4), lock washer (5) and nut (6).

2- Then, place the lever (7) totally forwards and engage the wheel (8) in the support (2).

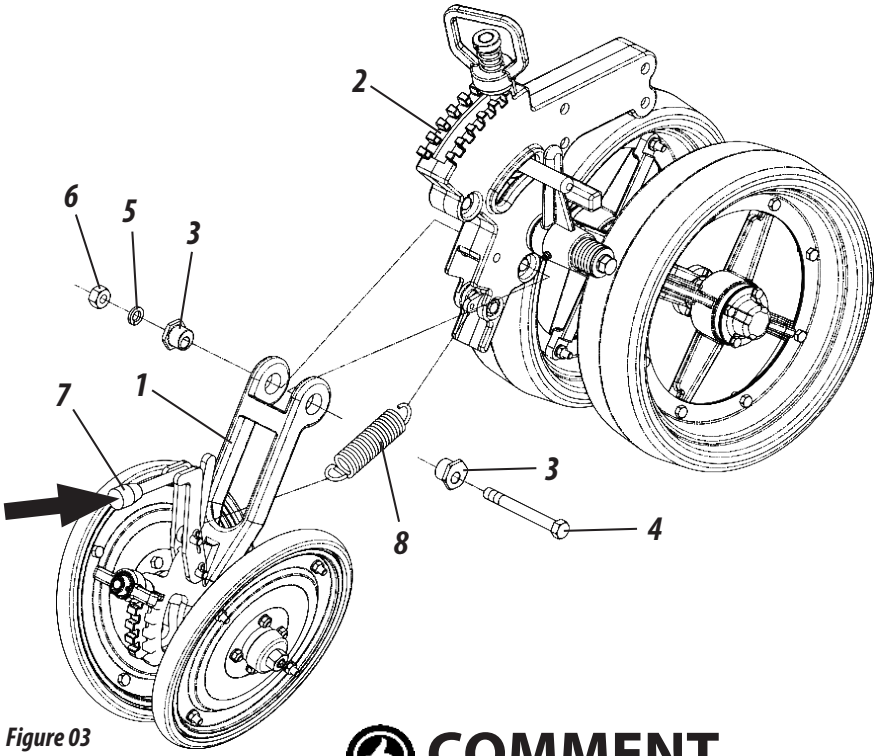



Figure 03

**COMMENT**

***Perform the same procedure in assembling all the other carts.***

## ROW ASSEMBLY (FIGURE 04)

Assemble the rows (1), proceeding in the following manner:

1- Insert the cart (2) between the row plates (1), fastening them with screws (3), lock washers (4) and nuts (5).

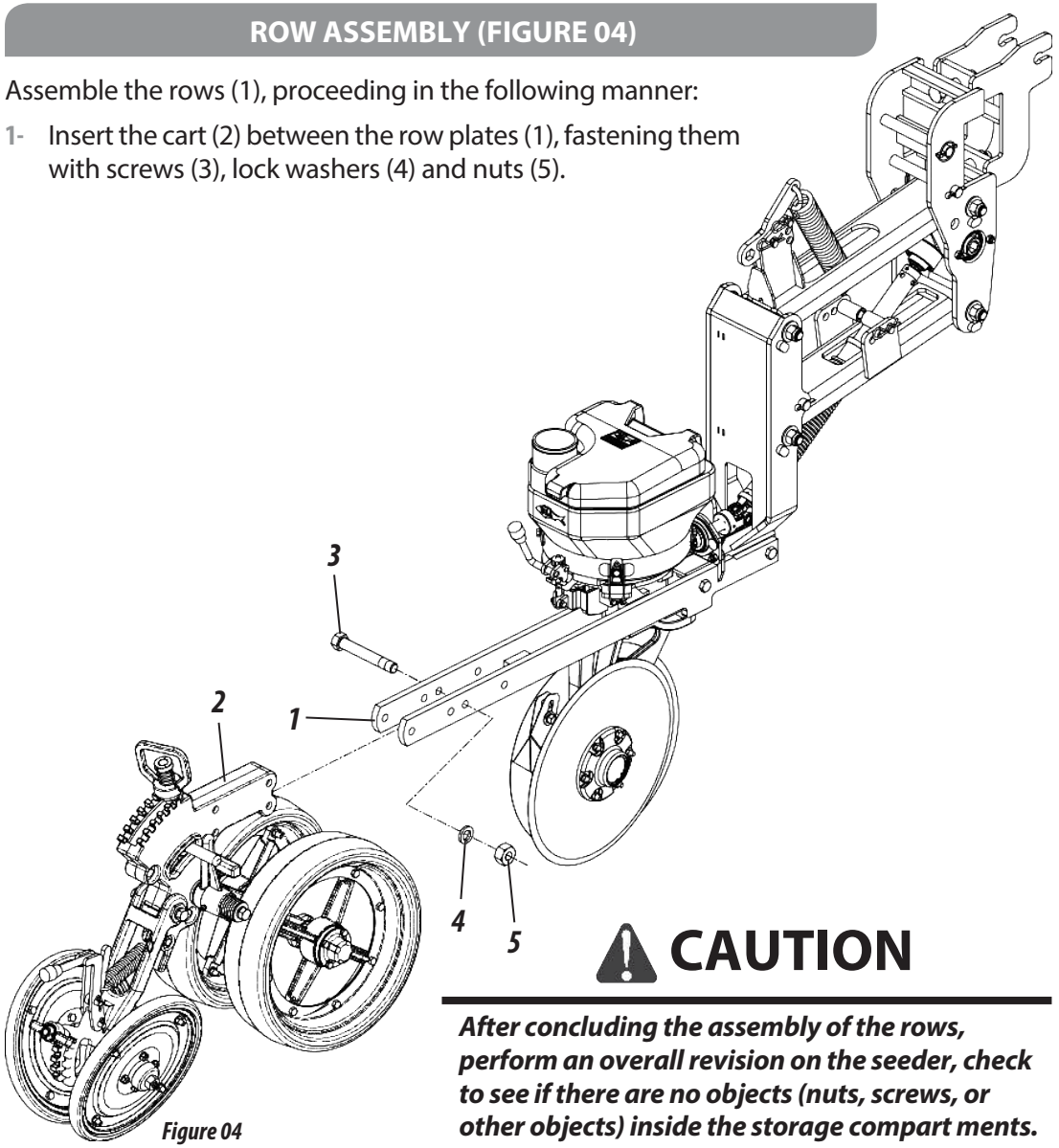



Figure 04

**CAUTION**

***After concluding the assembly of the rows, perform an overall revision on the seeder, check to see if there are no objects (nuts, screws, or other objects) inside the storage compart ments. Retighten all screws and nuts, check all the pins, cotter pins, and latches, review all the hoses.***

# ASSEMBLY

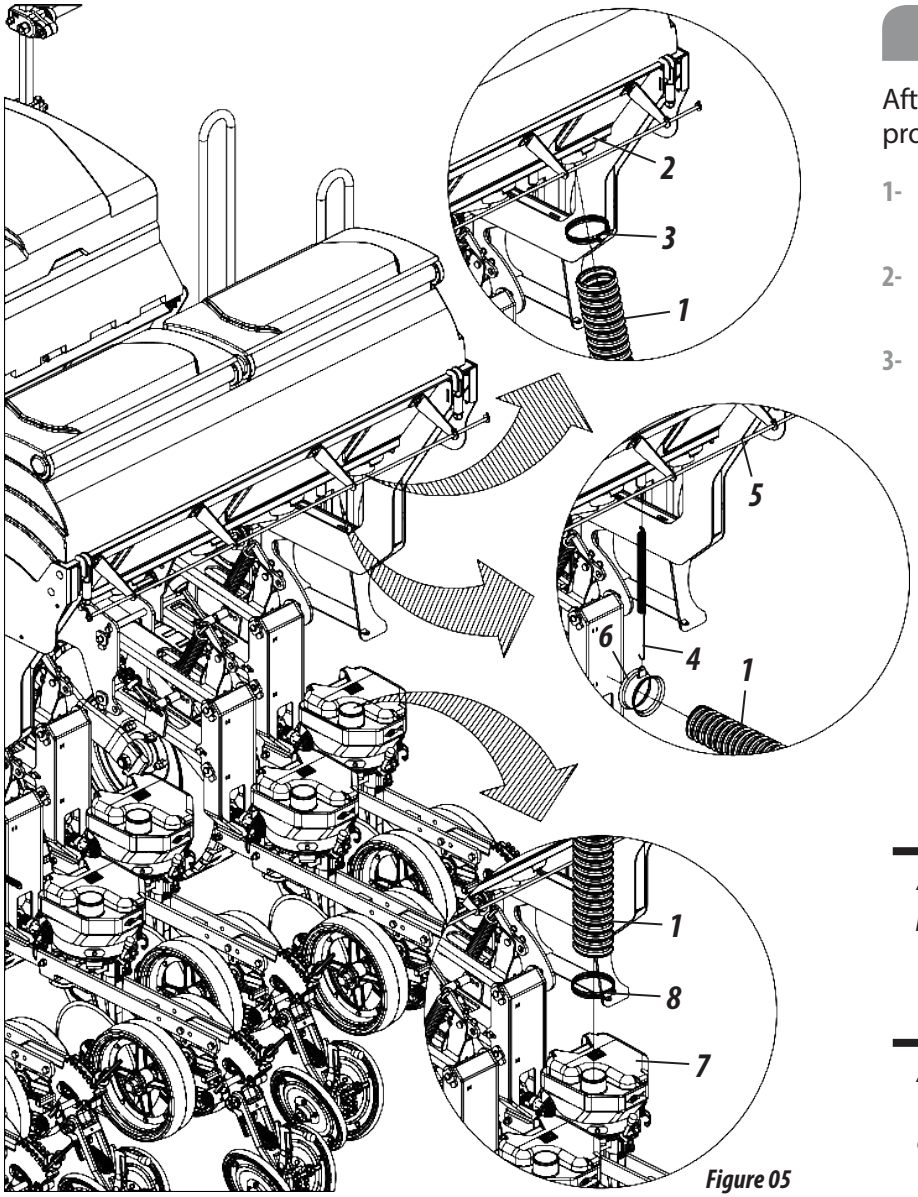



Figure 05

## SEED CONDUCTOR HOSE ASSEMBLY (FIGURE 05)

After concluding the assembly of the rows, fasten the seed conductor hoses (1), then to do this proceed as follow:

1- Couple the seed conductor hoses (1) to the upper seed storage compartment (2), using the clamp (3).

2- Then fasten the spring (4) to the support (5) and the clamp (6),after inserting the seed hose (1) inside the clamp (6).

3- Finally, couple the seed conductor hose (1) to the lower part of the seed storage 7), fastening, it using the clamp (8).

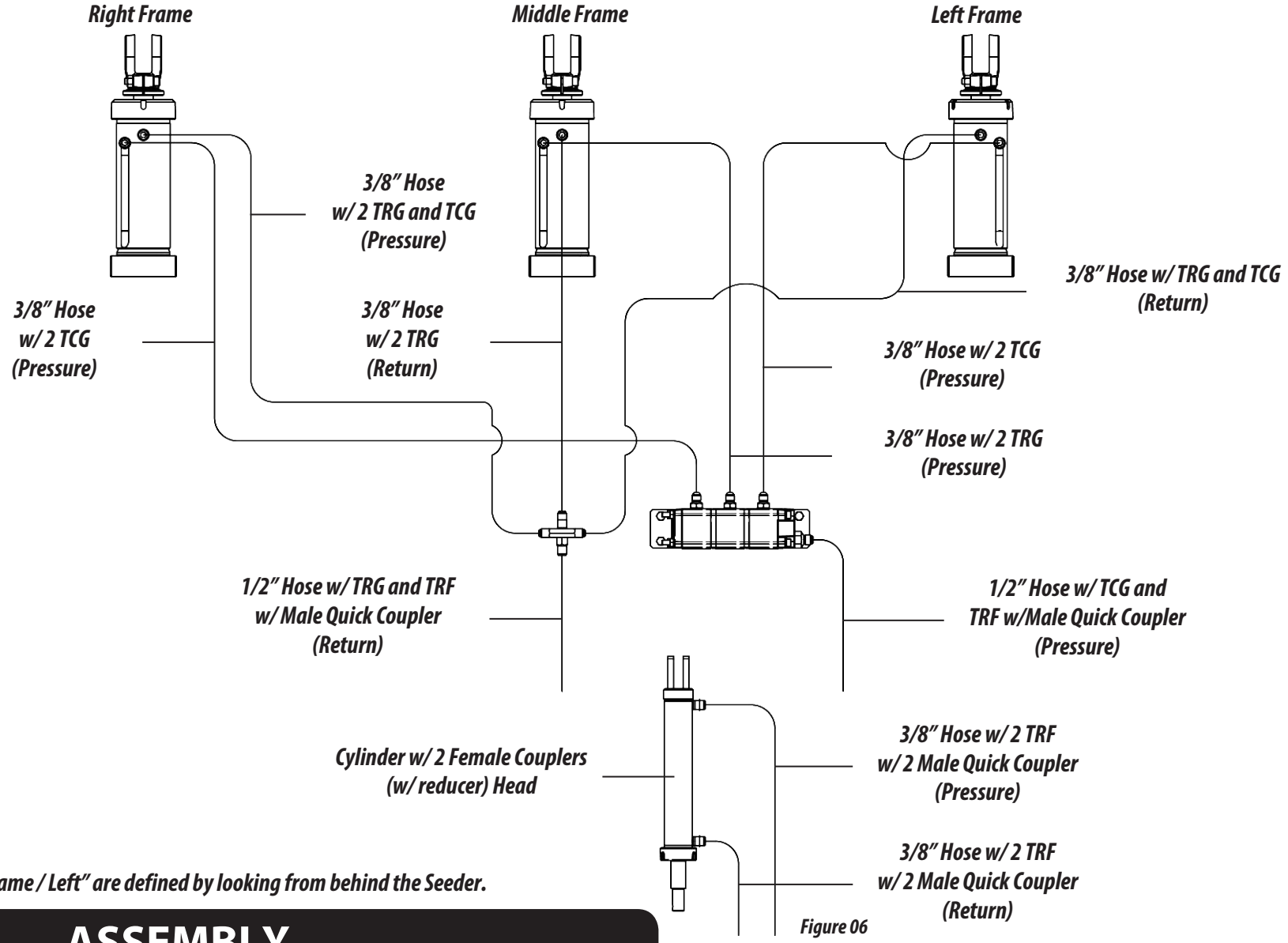
## COMMENT

***After concluding the assembly of the seed conductor hose (1), perform the same procedure on all other rows.***

## CAUTION

***After concluding the assembly of the rows, perform an overall revision on the seeder, check to see if there are no objects (nuts, screws, or other objects) inside the storage compartments. Retighten all screws and nuts, check all the pins, cotter pins, and latches, recheck hoses.***

## HYDRAULIC SYSTEM ASSEMBLY WITHOUT ROW MARKER SP TOPOGRAFIC 4500 TO 7500 (FIGURE 06)

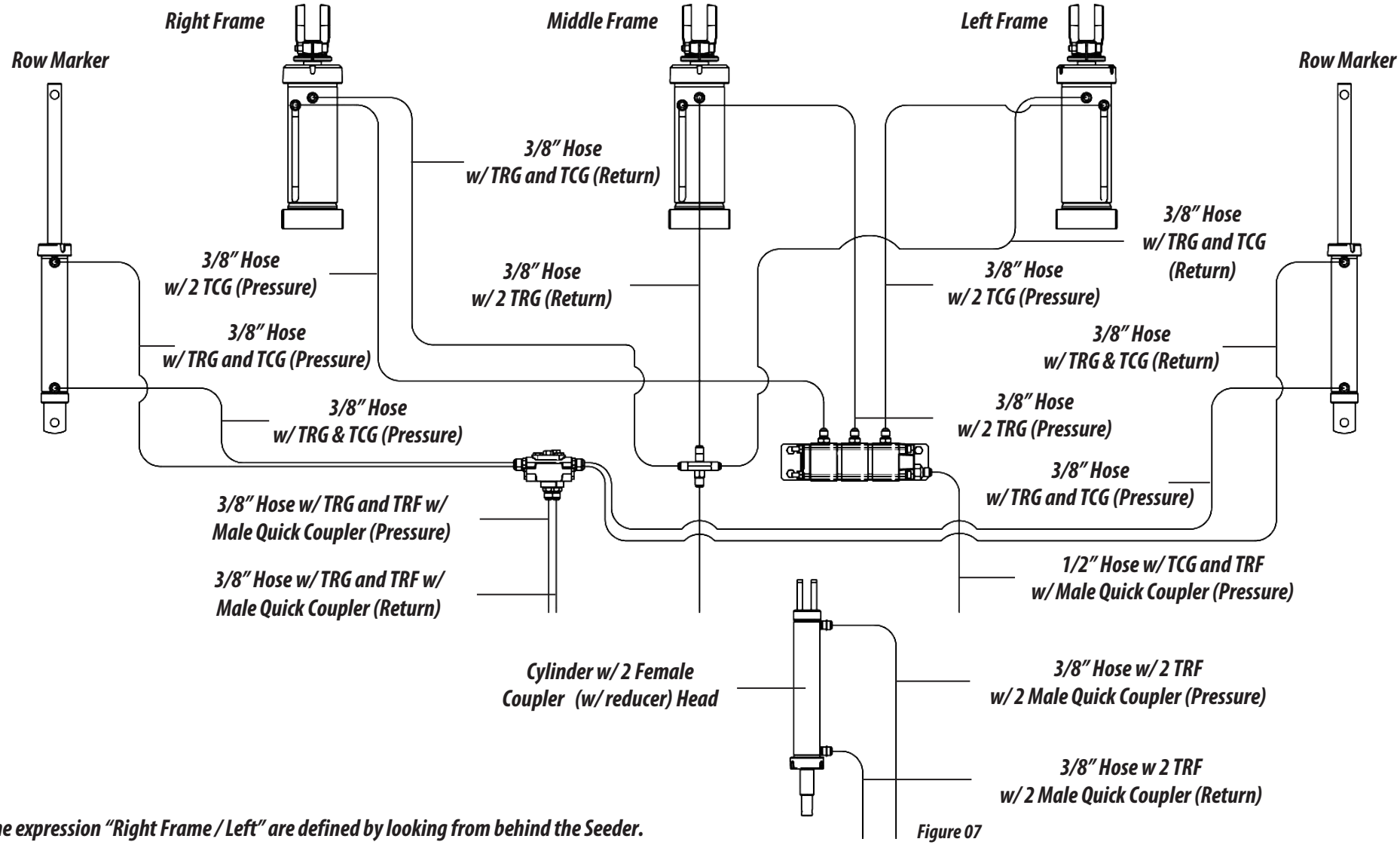



*CMTS: The expression "Right Frame / Left" are defined by looking from behind the Seeder.*

*Figure 06*

# ASSEMBLY

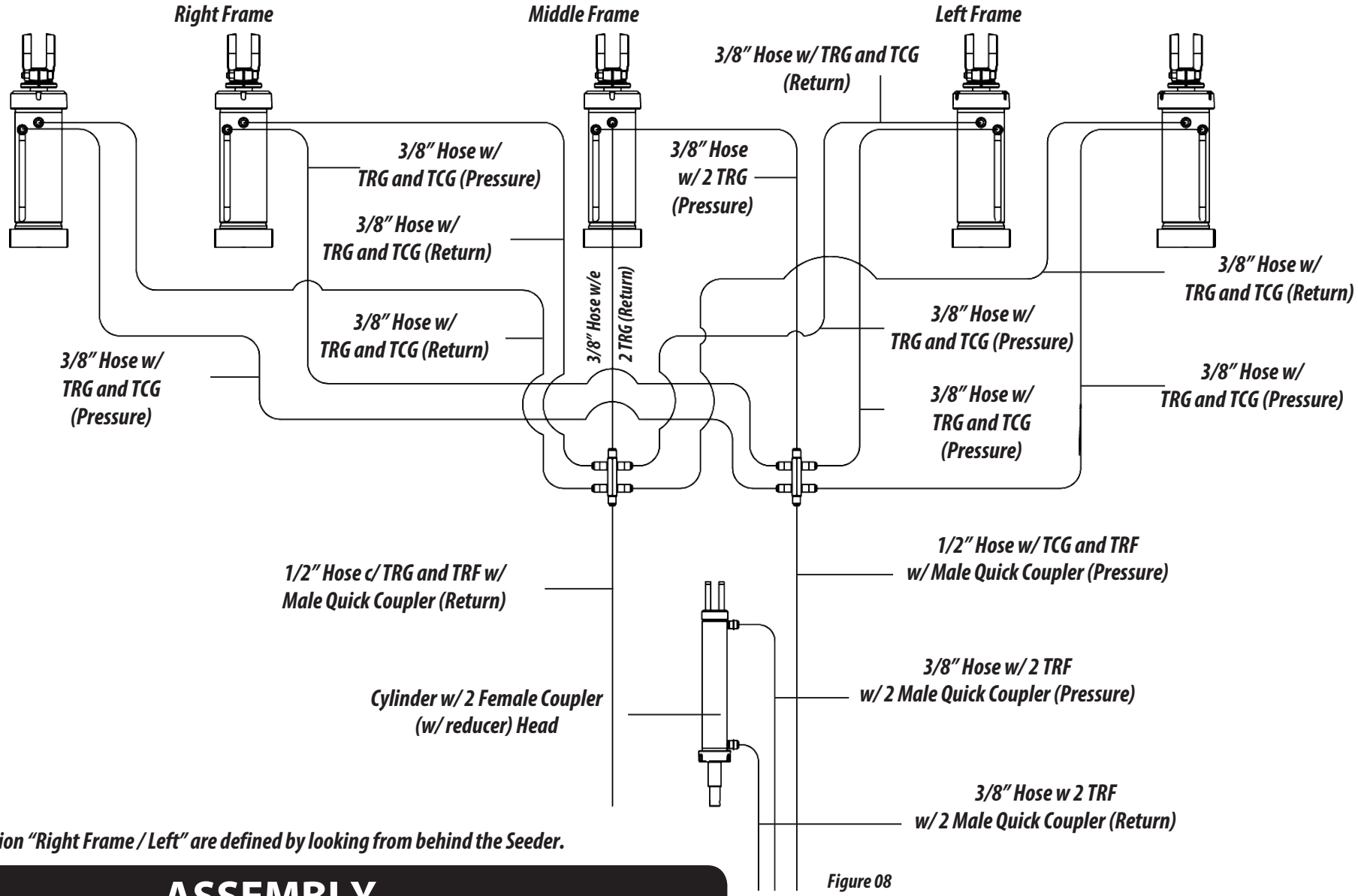
## HYDRAULIC SYSTEM ASSEMBLY WITH ROW MARKER SP TOPOGRAFIC 4500 TO 7500 (FIGURE 07)




*CMTS: The expression "Right Frame / Left" are defined by looking from behind the Seeder.*

*Figure 07*

## HYDRAULIC SYSTEM ASSEMBLY WITHOUT ROW MARKER SP TOPOGRAFIC 9500 (FIGURE 08)

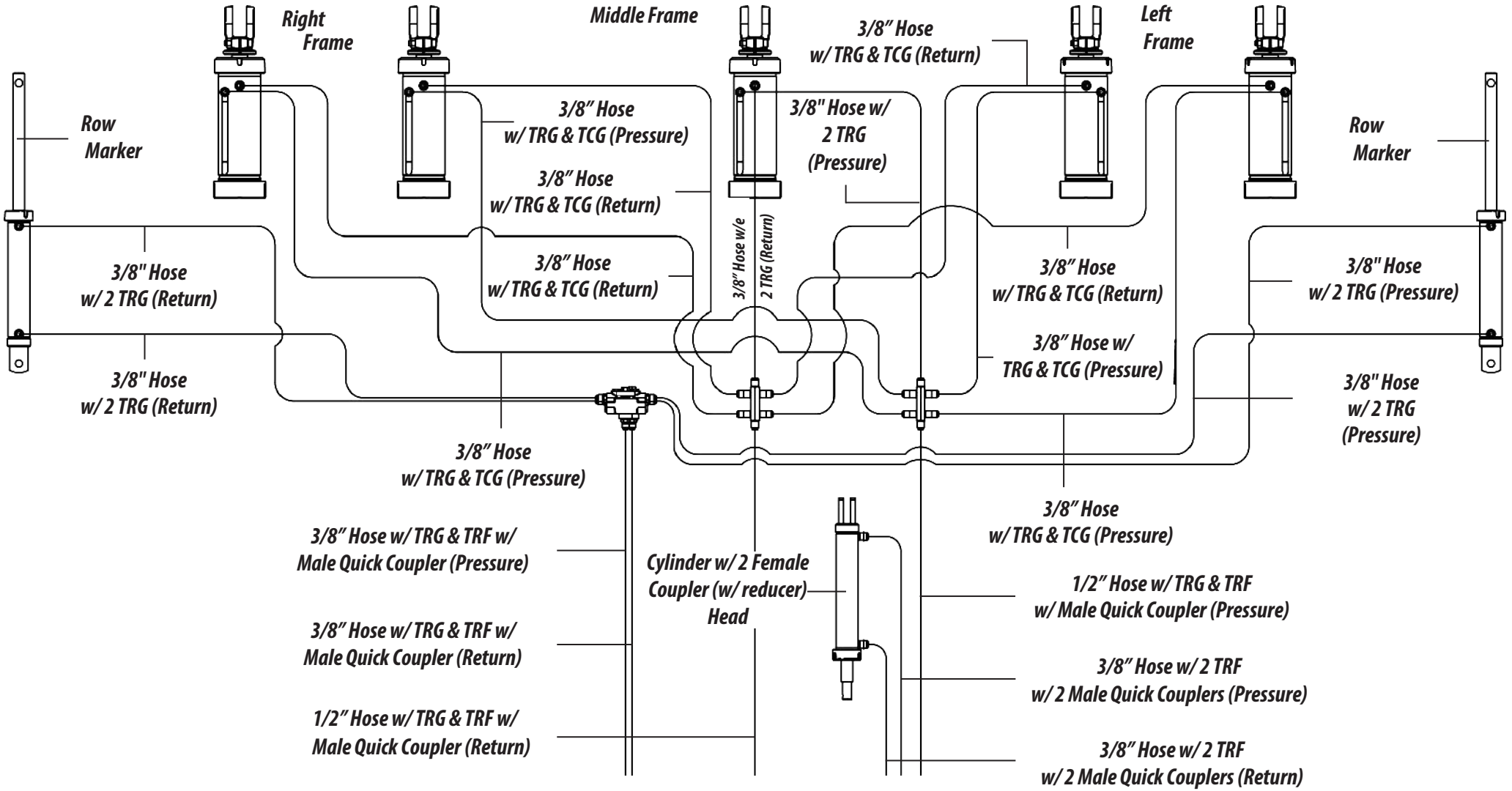



*CMTS: The expression "Right Frame / Left" are defined by looking from behind the Seeder.*

*Figure 08*

# ASSEMBLY

## HYDRAULIC SYSTEM ASSEMBLY WITH ROW MARKER SP TOPOGRAFIC 9500 (FIGURE 09)

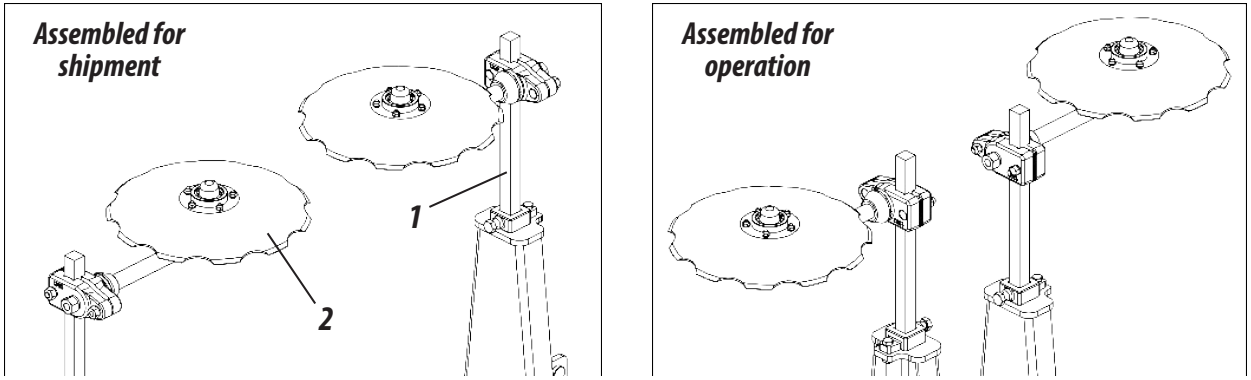



*CMTS: The expression "Right Frame / Left" are defined by looking from behind the Seeder.*

*Figure 09*

## CUTTING DISC ASSEMBLY AND ROW MARKER (FIGURES 10/11)

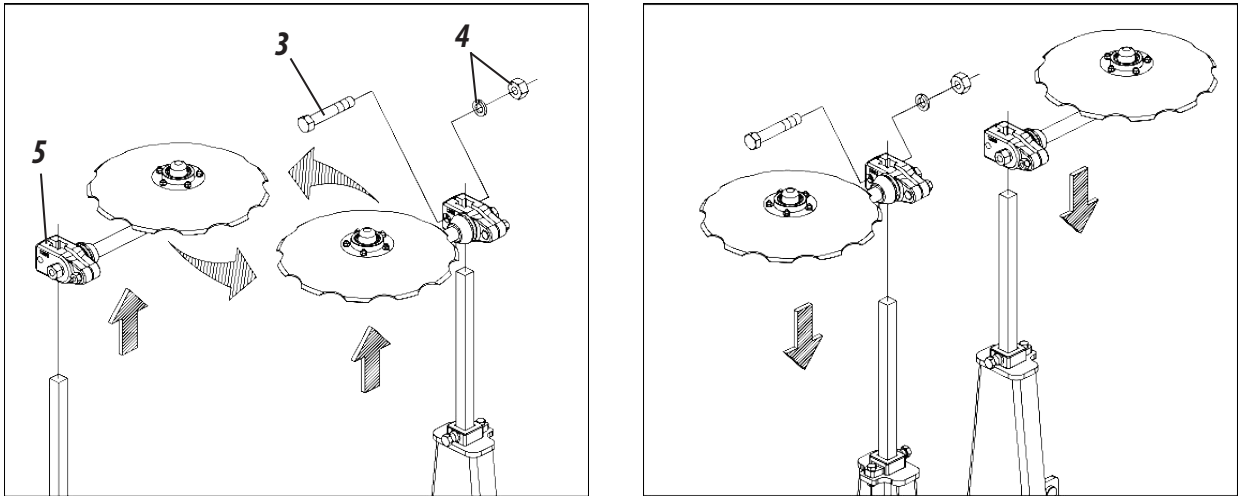
The seeders are shipped from the factory with the row markers (1) assembled. The discs (2), are assembled inversely to their respective markers in order to avoid risks of accidents during the shipment process, **as shown in figures 10.**




*Figures 10*

Before starting to operate the seeder, change the position of the discs (2) and the row markers (1), proceed in the following manner:

1- Loosen the screws (3), washers and nuts (4), remove the disc supports (5) and assemble the markers contrary to how they were originally assembled **as shown in figures 11.**




*Figures 11*

**IMPORTANT**

***Before starting to assemble the row marker, look for a safe and easy access for facilitating the assembly process.***

## SYSTEM FOR LIFTING AND LOWERING THE COUPLING HEAD (FIGURES 12)

For purposes of ergonomics, the SP TOPOGRAFIC is shipped from the factory with a lifting system for the coupling head (1) using a hydraulic cylinder (2). Before the seeder is shipped in the truck, proceed as follows to lift the coupling head (1):

1- Couple the female quick couplers (3) to the hydraulic cylinder (2). Then, couple the male quick couplers (4) to the hoses (5)

2- After, coupling the males quick couplers (4) to the female quick couplers (3) and the other end to the hoses (5) in the tractor.

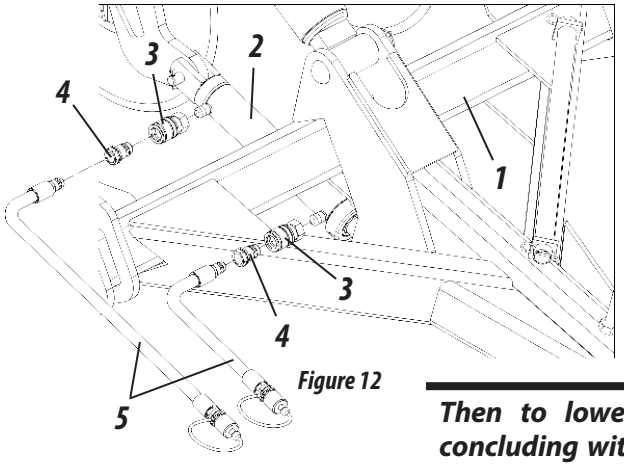
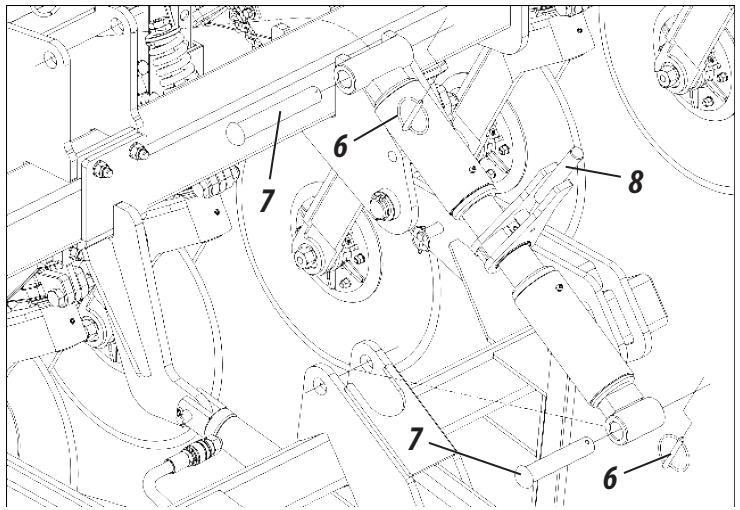


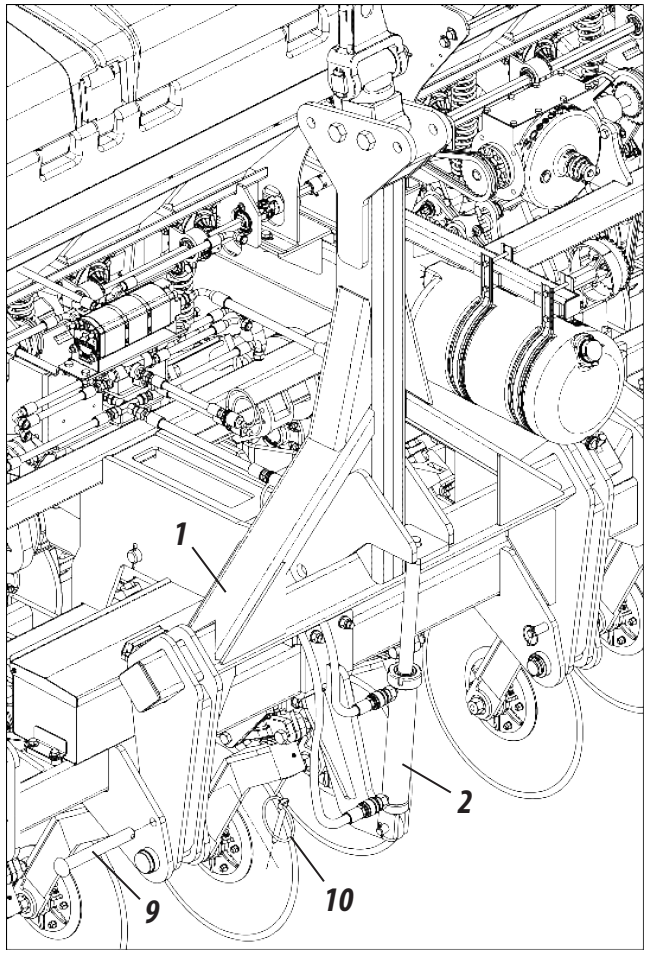

Figure 12

3- After, release the latches (6), pins (7) and remove the controller (8).




4- After that, activate the hydraulic cylinder (2) making it lift the coupler head (1).

5- Finally latch the coupler head (1) using the pins (9) and latches(10).




**CAUTION**

***Do not operate the hydraulic cylinder (2) before removing the controller (8). Ignoring this warning can cause serious accidents or even death.***

**IMPORTANT**

***Then to lower the coupler head (1), perform the reverse process, concluding with the removal of the hoses (5) and female quick couplers (3) and male (4) from the cylinder (2) and the head (1). When not operating or transporting the seeder with the hoses (5) coupled to the cylinder (2). Ignoring this warning can cause serious accidents or even death.***

**COMMENT**

***Before lowering the coupler head (1), make sure no people are on the coupler head. Ignoring this warning can cause serious accidents or even death.***

## COUPLING TO THE TRACTOR (FIGURE 13)

Before coupling the seeder to the tractor, verify if the tractor is equipped with weights or ballasts in the front, so that it does not lift up the tractor. The rear wheels will provide increased stability and traction on the soil. Proceed as follows to couple the seeder:

1- Approach the tractor slowly to the seeder in reverse, pay close attention to applying the brakes.

2- After leveling the coupler (1) from the seeder to the tractor coupler using the adjustments (2) on the coupler adjustment plate. After that, approach the tractor to reverse, pay attention in applying the brakes when necessary.

3- Then, engage the coupler head (1) to the tractor, fastening it by using the coupler pin (3) and latch (4).

4- After, couple the rest of the hoses (5) in the tractor quick coupler, **as shown in figure 13.**

### ⚠ CAUTION

***After concluding the coupling of the seeder to the tractor, remove the hoses (6) to from the male quick couplers (7) and female (8) from the cylinder (9) coupler head (1). Do not operate or transport the seeder with the hoses (6) coupled to the cylinder (9) coupler head (1). Ignoring this warning can cause serious accidents or even death.***

### IMPORTANT

***Before connecting or disconnecting the hydraulic hoses, turn off the engine and release the hydraulic pressure by activating the control levers completely. When releasing the pressure from the system, certify nobody is near the surrounding area of movement around the equipment.***

### COMMENT

***When coupling the seeder, look for a safe and easily accessible place; always use a low gear and slow speed.***

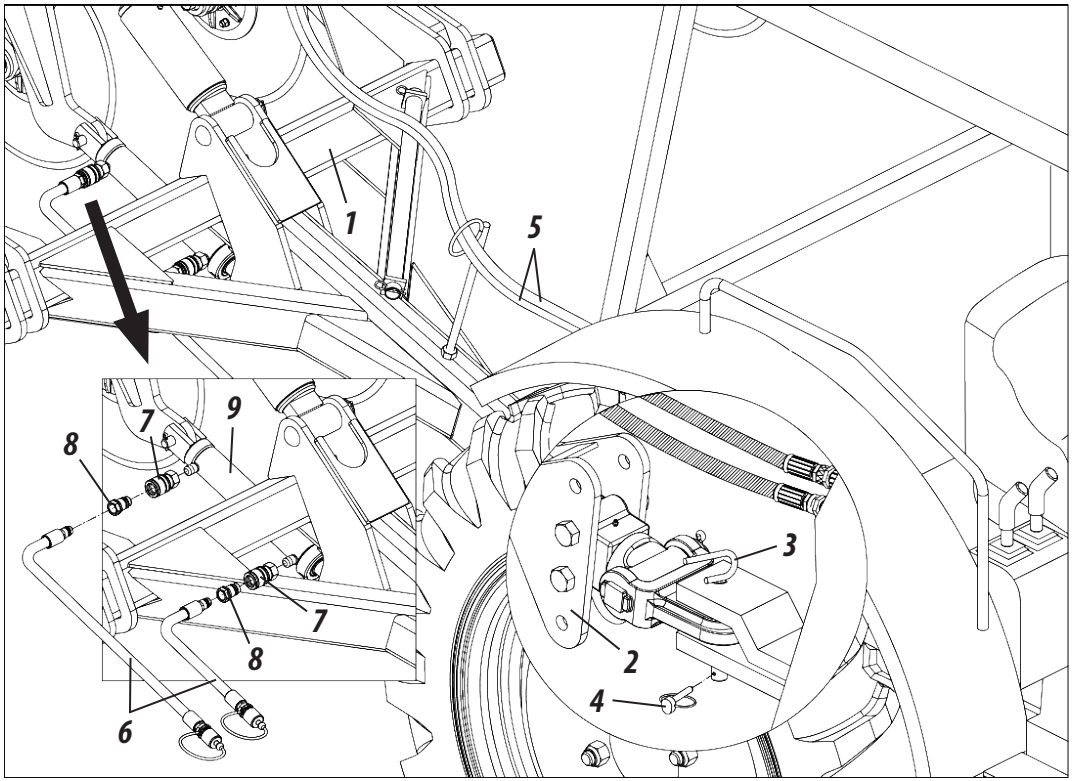



*Figure 13*

# COUPLING

## LEVELING (FIGURE 14)

After concluding the coupling of the **SP TOPOGRAFIC**, level it, proceeding as follows:

1- Place the tractor and seeder on a flat location.

2- Then level the equipment using the controller (1).

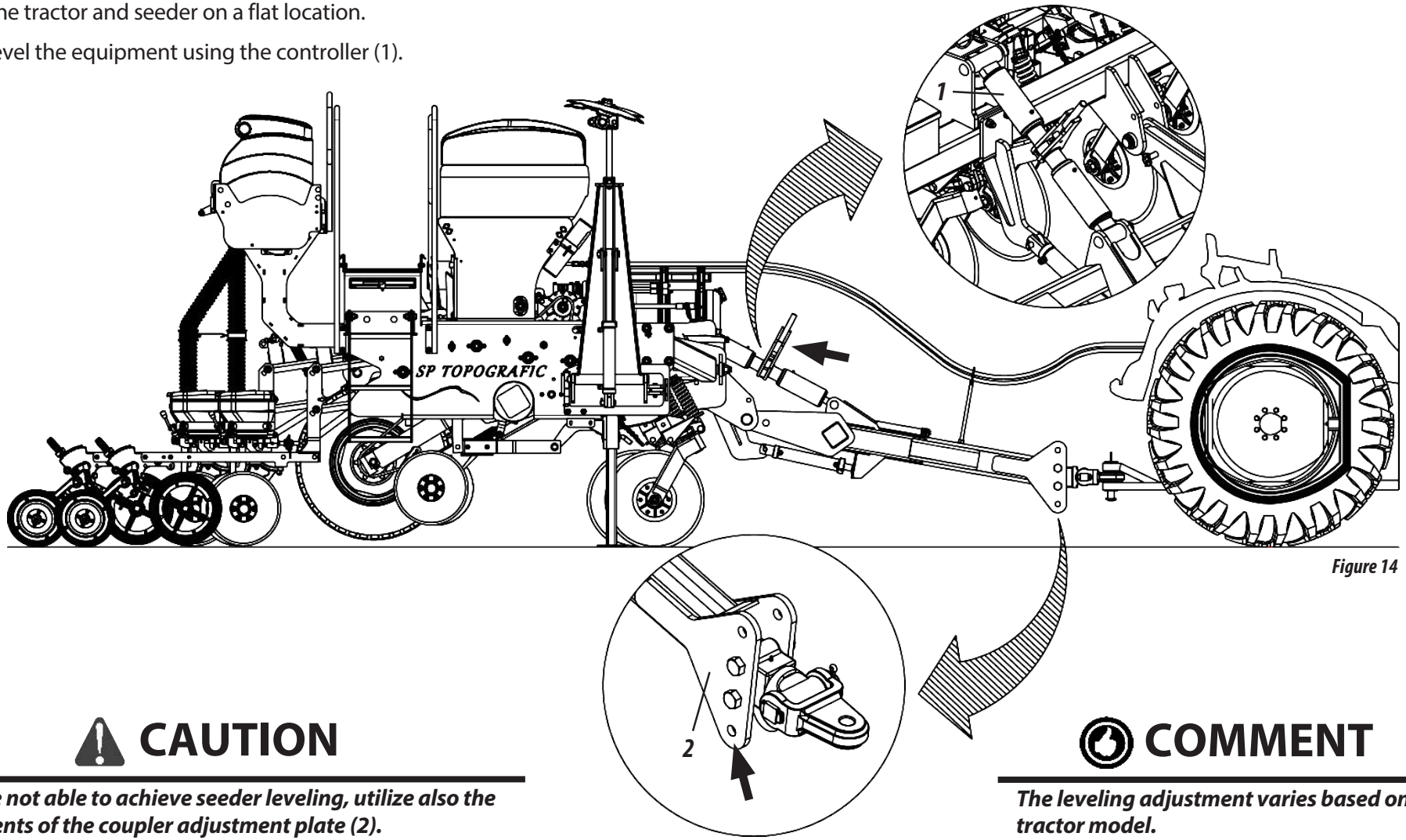



*Figure 14*

**CAUTION**

***If you are not able to achieve seeder leveling, utilize also the adjustments of the coupler adjustment plate (2).***

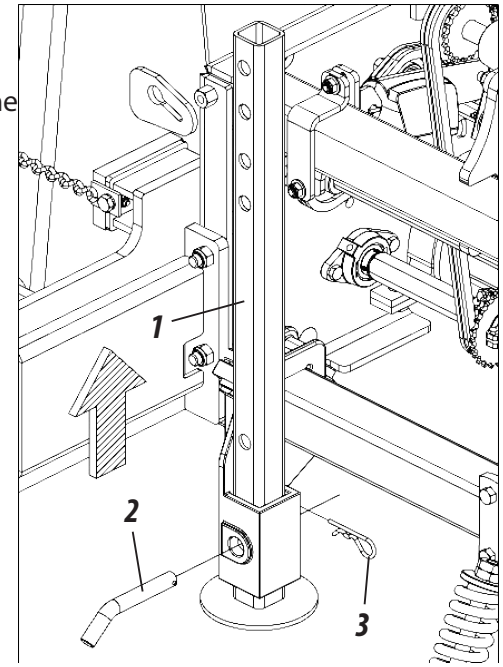
**COMMENT**

***The leveling adjustment varies based on the tractor model.***

## PROCEDURE FOR TRANSPORT (FIGURES 15)

Proceed as follows before transporting the seeder:

1- Lift the support foot (1) and fasten it using the pin (2) and latch (3).




## IMPORTANT

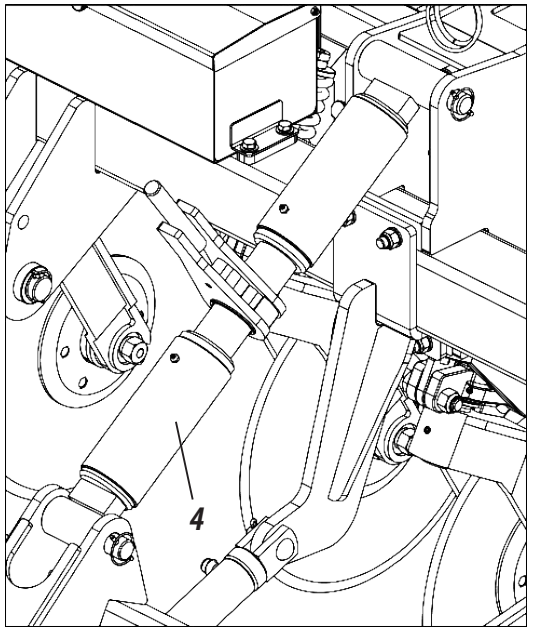
***Do not transport the seeder when loaded, as this can damage the equipment. We recommend loading it only in the operating location.***

***If the seeder remains in the field for any reason, we recommend covering it is with a waterproof tarp to avoid dampness.***

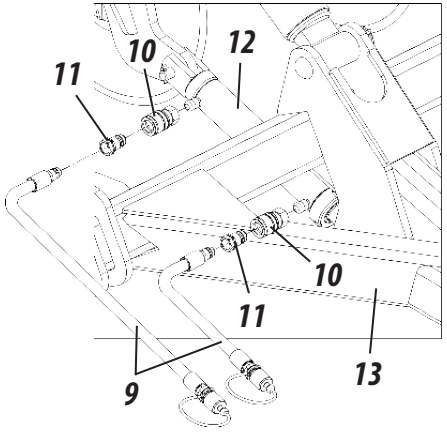
***Do not transport the seeder without verifying all the cited procedures.***

2- After the seeder is lowered, check if it is level to the soil, if not, level it using the level control (4) of the coupler head.

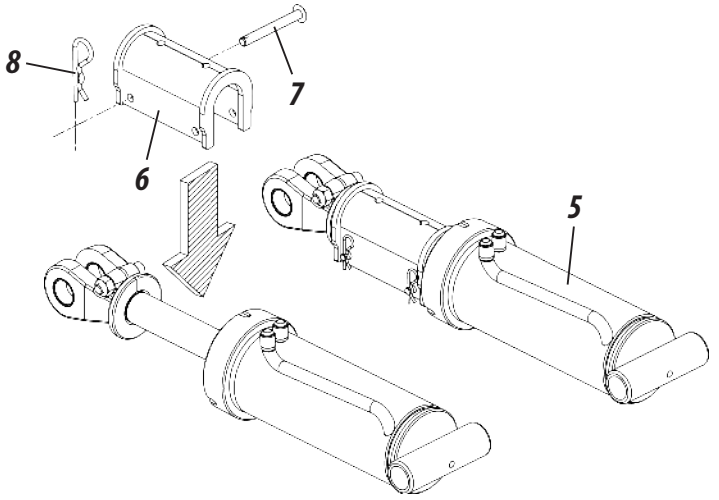
3- Then, lift it by activating the complete course of the hydraulic cylinder (5) and install the yellow latch (6) and the shaft in the same then latch the pin (7) and latch (8).




*Figures 15*




4- Conclude by removing the hoses (9) and the female quick couplers (10) and the male (11) coupler of the cylinder (12) from the coupler head (13).




## CAUTION

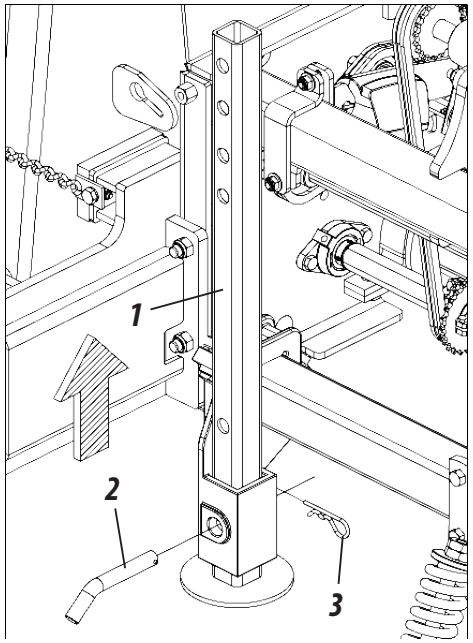
***Do not transport the seeder with the hoses (9) coupled to the cylinder (12) the coupler head (13). Ignoring this warning can cause serious accidents or even death.***

# OPERATING

## PROCEDURE FOR OPERATING - PART I (FIGURES 16)

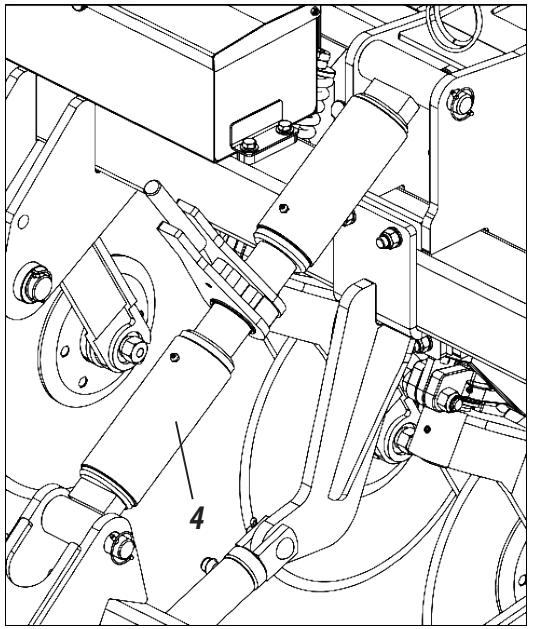
Before operating the seeder, proceed as follows:

1- Lift the support foot (1) and fasten it with the pin (2) and latch (3).




2- When the seeder is lowered, verify if it is level to the soil, if not, level it using the level controller (4) for the coupler head.

3- Following that, lift the rows by activating the complete course of the hydraulic cylinders (5) and install the restraining rings (6) on the shafts (7) on the same.

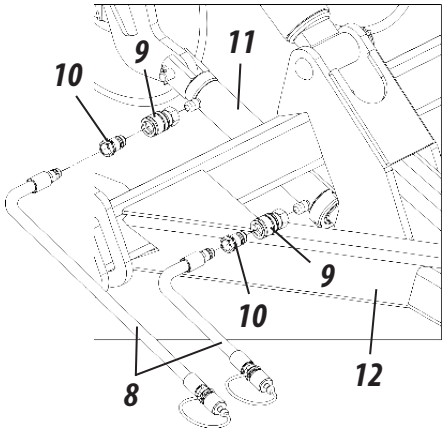



*Figures 16*

## IMPORTANT

***Always place the same number of restraining rings (6) on all the hydraulic cylinders (5) when lifting the wheels. Do not operate the seeder without first verifying all the cited procedures***

4- After removing the hoses (8) and the female quick couplers (9) and male (10) from the cylinder (11) to the coupler head (12).

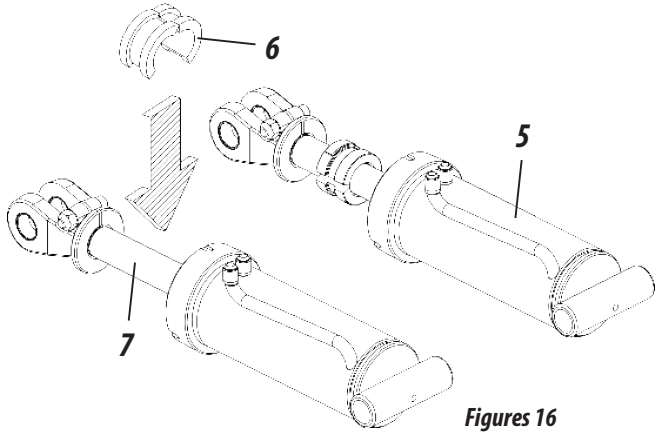



## CAUTION

***Do not operate the seeder with the hoses (8) coupled to the cylinder (11) to the coupler head (12). Ignoring this warning can cause serious accidents or even death.***

## COMMENT

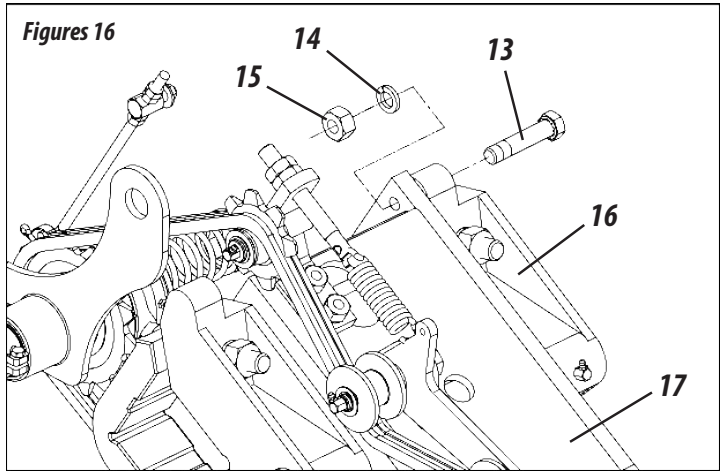
***After coupling the restraining rings (6), the SP TOPOGRAFIC will always operate at the same depth, in hard soil as well as loose, this is because, the restraining rings (6) limit the course of the hydraulic cylinder (5), which means, they prevent the oscillation of the wheels***




*Figures 16*

## PROCEDURE FOR OPERATING - PART II (FIGURES 16)

5- Conclude by removing the screw (13), lock washer (14) and nut (15) unlatching the wheel (17) support clamp (16).



Figures 16

**⚠ CAUTION**

***Do not operate the seeder before removing the screw (13), lock washer (14) and nut (15) from the clamp (16) of the wheel support (17). Ignoring this warning can cause failures in the sowing of seeds.***

## LADDER USE (FIGURES 17)

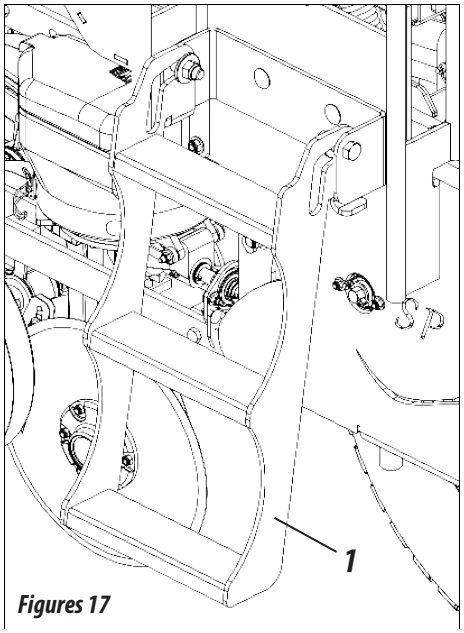
The articulating ladder (1) must only be used when loading or performing maintenance on the storage compartments of the **SP TOPOGRAFIC**. Before using the articulating ladder (1), certify the seeder is stopped and the tractor is turned off.

**⚠ CAUTION**

***Do not remain on the ladder when the seeder is operating or being transported.***
***Do not operate or transport the seeder when the ladder is opened.***
***Do not transport people on the platform, ladder, or any other part of the seeder.***
***Ignoring this warning can cause serious accidents or even death.***

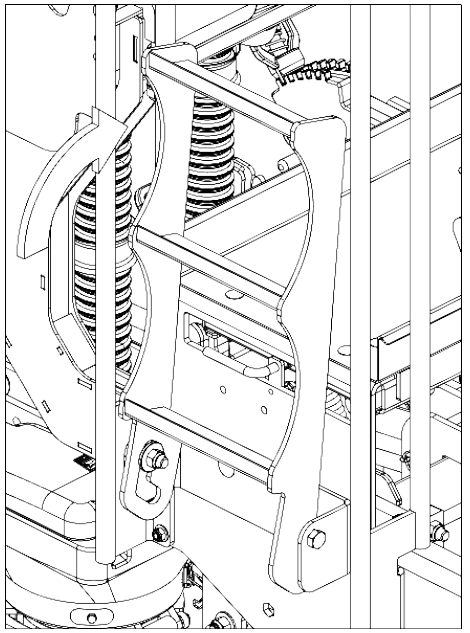
**IMPORTANT**

***Always use the articulating ladder (1) for accessing or loading the storage compartments. The articulating ladder (1) complies with NBR safety standards.***



Figures 17

*The position for loading or performing maintenance on the storage compartments*



*Position for operating or transporting*

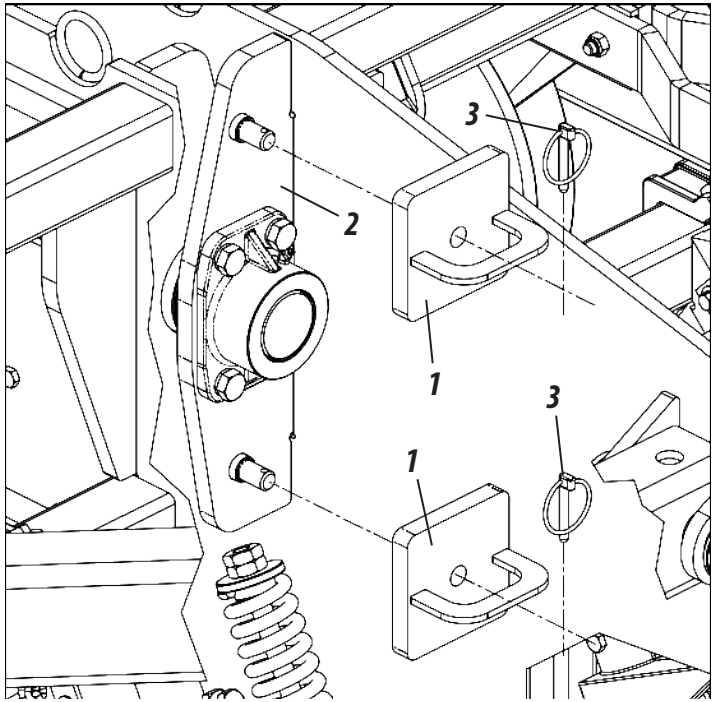
# TRANSPORT / OPERATING

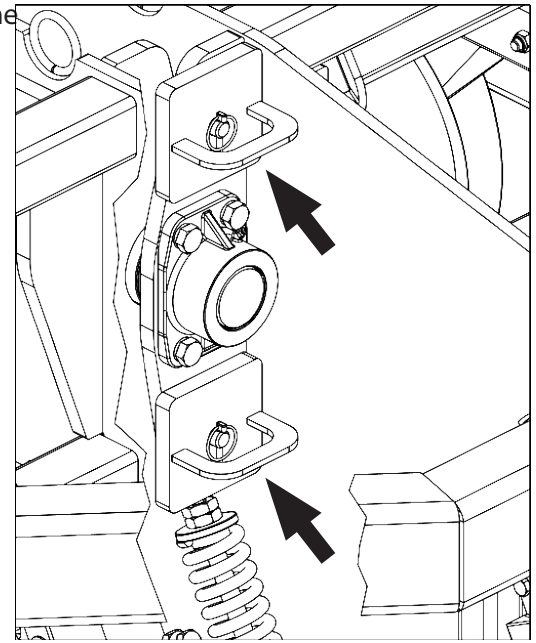
## FRAME FASTENING PLATES (FIGURES 18)

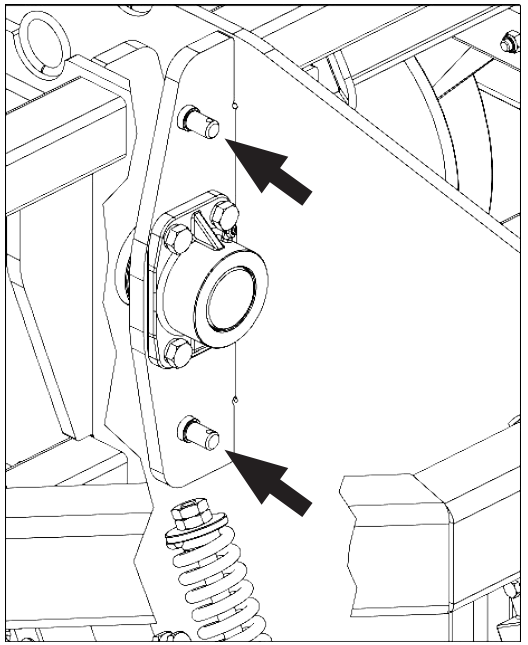
The yellow fastening plates (1) must be used only for transporting and hoisting the seeder. Before starting to transport or hoist it, place the fastening plates (1), in the following manner:

1- Couple the yellow fastening plates (1) to the front and rear part of the frame (2) on both sides.

2- Following that, latch the yellow fastening plates (1) using the ring latches (3).





*Figures 18*

***With Plate: For Hoisting*** ***Without Plate: For Operating and Transporting***

**CAUTION** ***Do not hoist the seeder without first installing the fastening plates (1). Ignoring this warning can cause serious accidents or damage to the seeder.***

**IMPORTANT** ***Before starting to operate the seeder, remove the fastening plates (1). Ignoring this warning will nullify the articulating system of the seeder and so the seeder will not adjust to the soil.***

**COMMENT** ***The fastening plates (1) must be mounted on the front and rear part of the seeder and on both sides***

## SPACING BETWEEN ROWS

The **SP TOPOGRAFIC** model seeders are supplied with spacing based on the number of requested rows, but new spacing adjustments can be performed based on the type of desired crop.

### EVEN NUMBER OF ROWS (FIGURE 19)

Mark the center of the chassis of the **SP TOPOGRAFIC** and divide by 1/2 (half) of the spacing on the left and 1/2 (half) by the right, defining these points as the first two rows. After based on these, assemble the other rows based on this desired spacing.

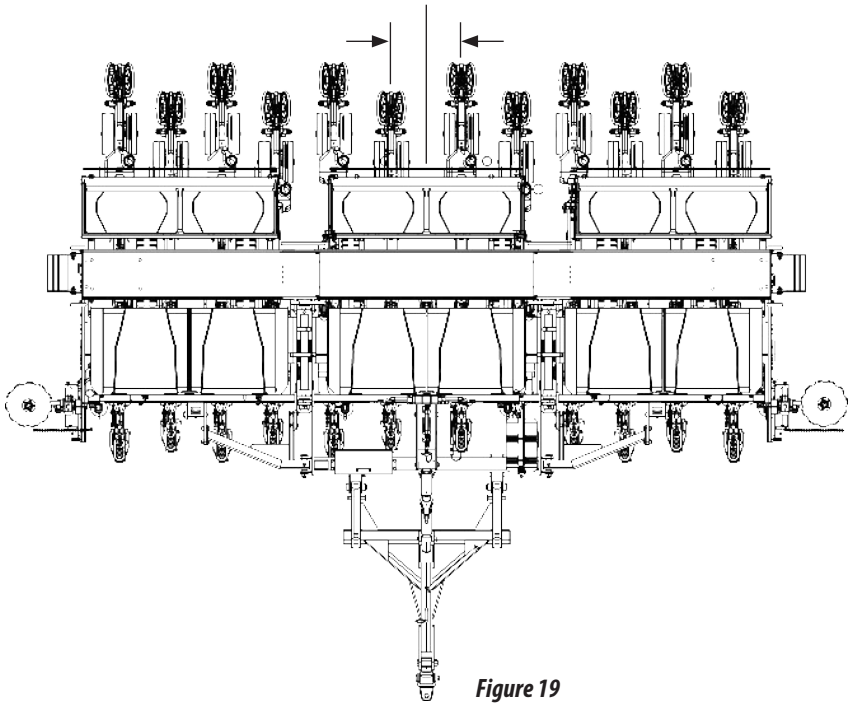


*Figure 19*

### ODD NUMBER OF ROWS (FIGURE 20)

Define the row in the center of the chassis of the **SP TOPOGRAFIC** and based on that, assemble the other rows based on this desired spacing.

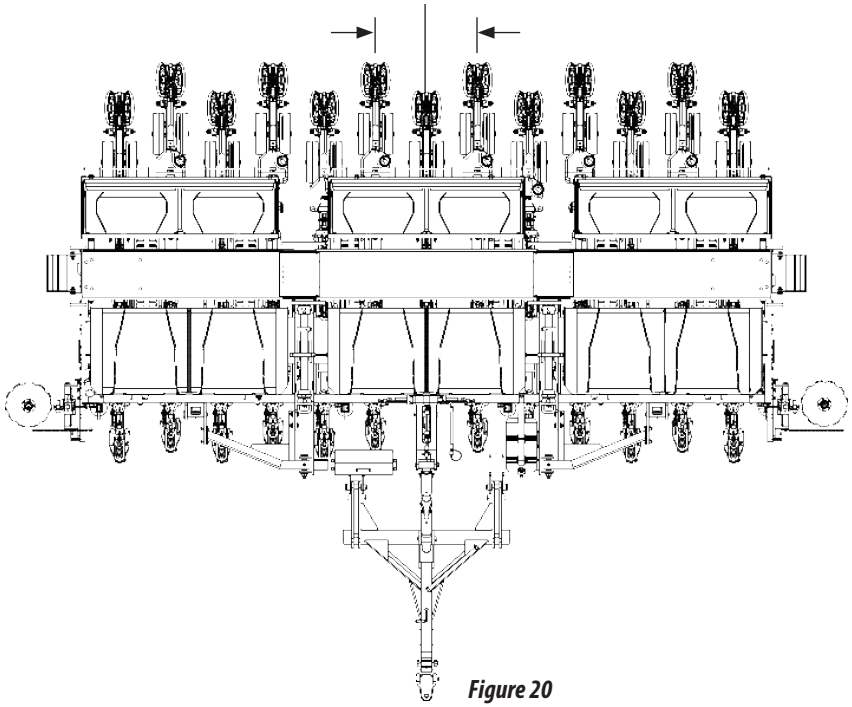


*Figure 20*

**COMMENT** | ***On the following page, see the possible spacing options, abiding by the above assembly instructions, for assembling the number of even or odd rows.***

# SPACING OPTIONS

# SPACING OPTIONS

## MILLIMETER SPACING TABLE (TABLE 02)

The **SP TOPOGRAFIC** model seeders are supplied with spacing based on the requested number of rows, afterwards new spacing formats can be changed according to the desired crop.

*Table 02*

| *Model* | *Version* | *# of Rows* | *Spacing (mm)* |
|---|---|---|---|
| SP TOPOGRAFIC | 4500 | 11/11 - (11 Rows) | 450 |
| | | 11/10 - (10 Rows) | 500 |
| | 5500 | 13/13 - (13 Rows) | 450 |
| | | 13/12 - (12 Rows) | 500 |
| | 6500 | 15/15 - (15 Rows) | 450 |
| | | 15/14 - (14 Rows) | 500 |
| | 7500 | 17/17 - (17 Rows) | 450 |
| | | 17/15 - (15 Rows) | 500 |
| | 8500 | 19/19 - (19 Rows) | 450 |
| | | 19/17 - (17 Rows) | 500 |
| | 9500 | 21/21 - (21Rows) | 450 |
| | | 21/19 - (19 Rows) | 500 |

## SKIDDING INDEX (FIGURES 21)

Due to such factors as the germination index, physical purity, vigor (supplied on the seed packages), as well as pests and diseases that can occur while the crop is growing, the number of plants when harvesting can be fewer than what was effectively sown while seeding.

Besides that, the local operating conditions must be considered, while seeding, as the tires can skid on the seeder. See the following calculation on the skidding index of the seeder.

1- Place the seeder on a non-deformed surface, such as asphalt, concrete, or compacted soil. Mark with chalk one point on the seeder tire;

2- Following that, place the seeder in slow motion and mark the space traveled by the tire for ten complete turns (**this is the theoretic distance**).

3- After, place the seeder in the local operating conditions (seeding area) and mark with chalk the seeder tire.

4- Finally operate the seeder at operating speed and mark the space traveled by the tire for ten complete turns (**this is the real distance**).

5- Have the data available and use the following equation to calculate skidding.

**EXAMPLE: The Seeder on concrete or compacted soil, obtains a distance of 21.25 meters from the ten complete turns of the tire; In the field a distance of 27.95 meters was obtained from the tire turning ten times, determined as follows:**

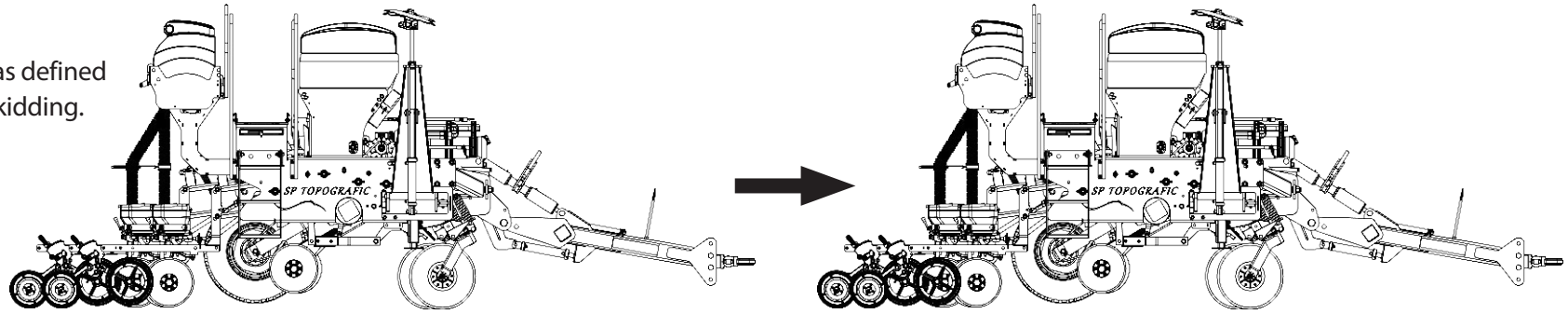
$$\text{Skidding} = 1 - \left( \frac{\text{theoretic distance}}{\text{distância real}} \right)$$

$$\text{Skidding} = 1 - \left( \frac{21{,}25}{27{,}95} \right) = 0{,}76$$

$$\text{Skidding} = 1 - 0{,}76 = 0{,}24$$

**CAUTION** | ***The tires on the seeder must be the same design and same tire pressure. The wheels must be adjusted the same as the spring pressure.***

**CONCLUSION:**
Thus, the skidding index was defined as 0.24 represents 24% of skidding.




*Figures 21*

# ADJUSTMENTS

## ROW MARKER ADJUSTMENT (FIGURE 22)

Adjusting the row markers is important in order to obtain a uniformly spaced crop, making the end seed row the same spacing as the last row planted, thereby facilitating operations. Then to adjust the row markings proceed as follows:

1- First, it is necessary to know the row spacing, the number of rows being used in the operation in the front tractor. Use the following formula, followed by an example:

**EXAMPLE: When planting 13 rows in the seeder, there is 0.45 meter spacing and the front measurement of the tractor is 1.43 meters, as follows:**

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

$$\textbf{Solution: } X = \frac{0{,}45 \times 14 - 1{,}43}{2}$$

$$D = 2{,}43 \text{ meters}$$

**Whereas:**

**E** = *Spacing between rows (meters)*
**N** = *Number of rows in the seeder*
**B** = *Front tractor measurement*
**D** = *Distance of the marker*

2- Adjust the row marker disc as 2.43 meters until the center of the first row of the crop.

3- The row markers are sequences, one below the next, however, if during the crop seeding, before finishing the row, there is any need to interrupt the work, activate the row marker valve so that you continue working with the marker on the correct side

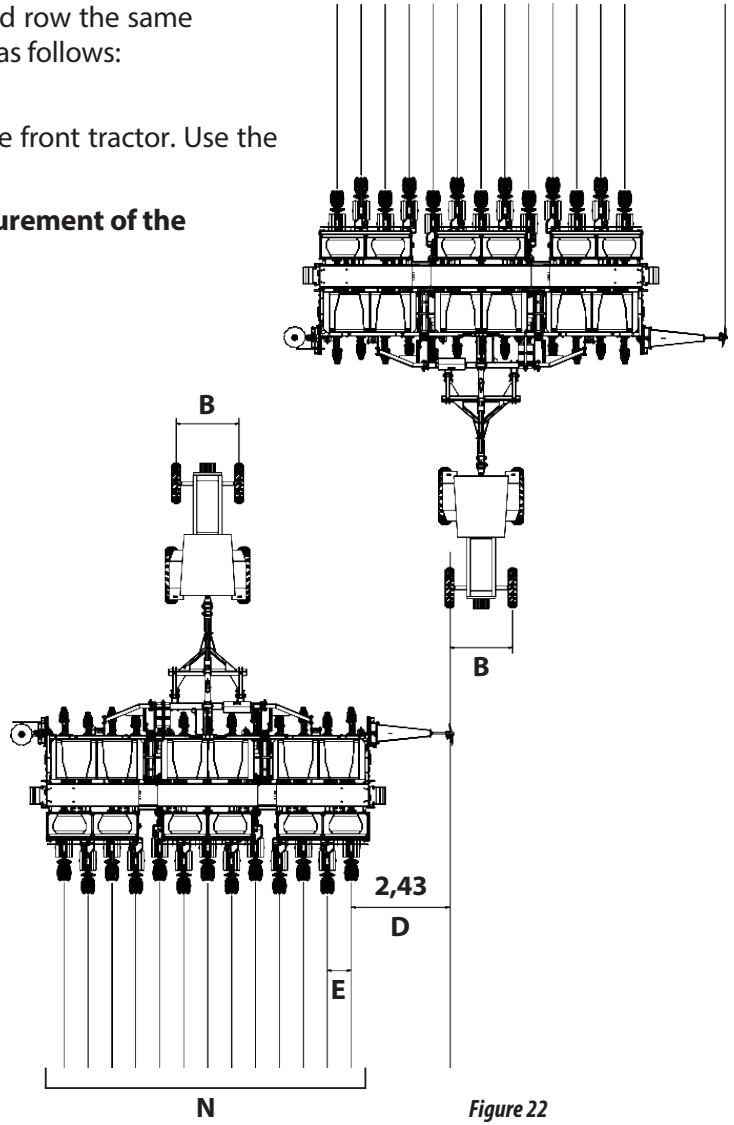


*Figure 22*

## COMMENT

***In order for the row marker to return to the same side it is necessary to activate the valve twice***

## CAUTION

***Avoid accidents caused by an intermittent action from row marking.***
***When activating the seeder, be sure there are no people on the row markers or in the area where they will be marked***

## ADJUSTING THE ROW MARKER DISCS (FIGURE 23)

The discs (1) of the row markers (2) are equipped with angular adjustment in order to facilitate the work of marking the soil. Then to adjust the (2) row (1) marking discs, proceed as follows:

1- Release the nut (3), turn the disc (1) to the desired position.
2- Then retighten the nut (3), fastening the disc (1) in the desired position.

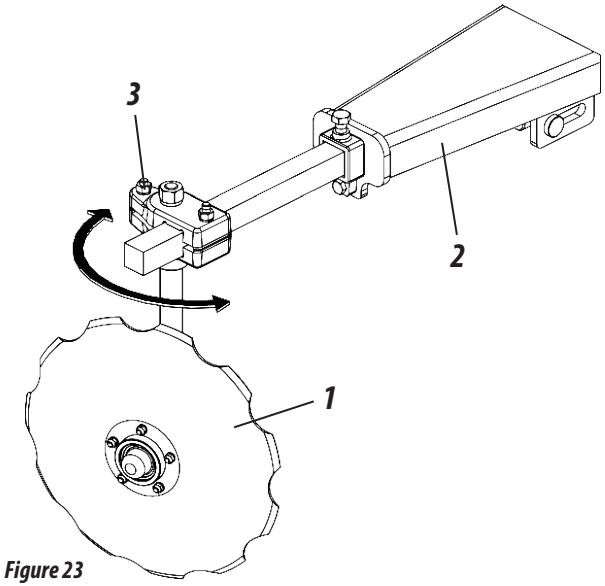


Figure 23

**CAUTION** | ***Before making any adjustments on the row marker, make sure it is on the soil, the seeder is motionless, and the tractor is turned off***

## ADJUSTING THE ROW MARKER BAR (FIGURE 24)

The row markers (1) are equipped with distance adjustment based on the number of rows and tractor size. Then to adjust the row marker distance (1), proceed as follows:

1- Loosen the screw (2), move the bar (3) to the desired position.
2- Then retighten the screw (2), fastening the bar (3) in the desired position.

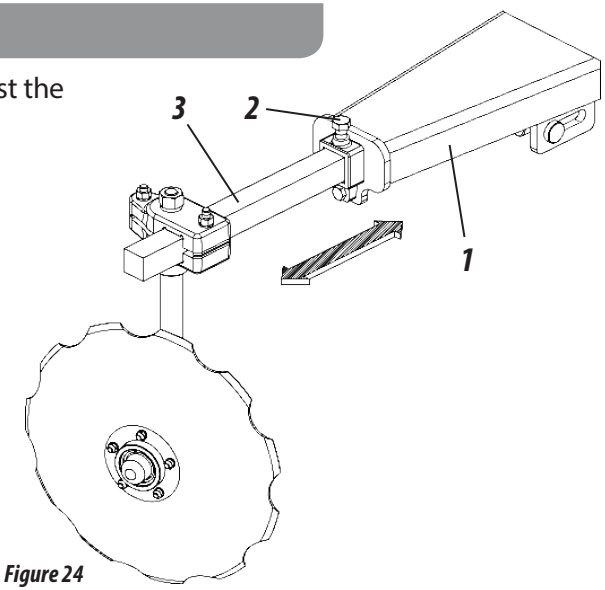


Figure 24

**IMPORTANT** | ***To know the distance for adjusting the row marker, perform the calculation as stated in the previous page.***

# ADJUSTMENTS

## RATCHET ADJUSTMENT (FIGURE 25)

Place the shims in the hydraulic cylinder in order to limit the depth of the discs **as stated in the instructions on page 29**, and then adjust the ratchet (1) according to the necessities of the work, thereby assuring the action of the power transmission system:

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

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

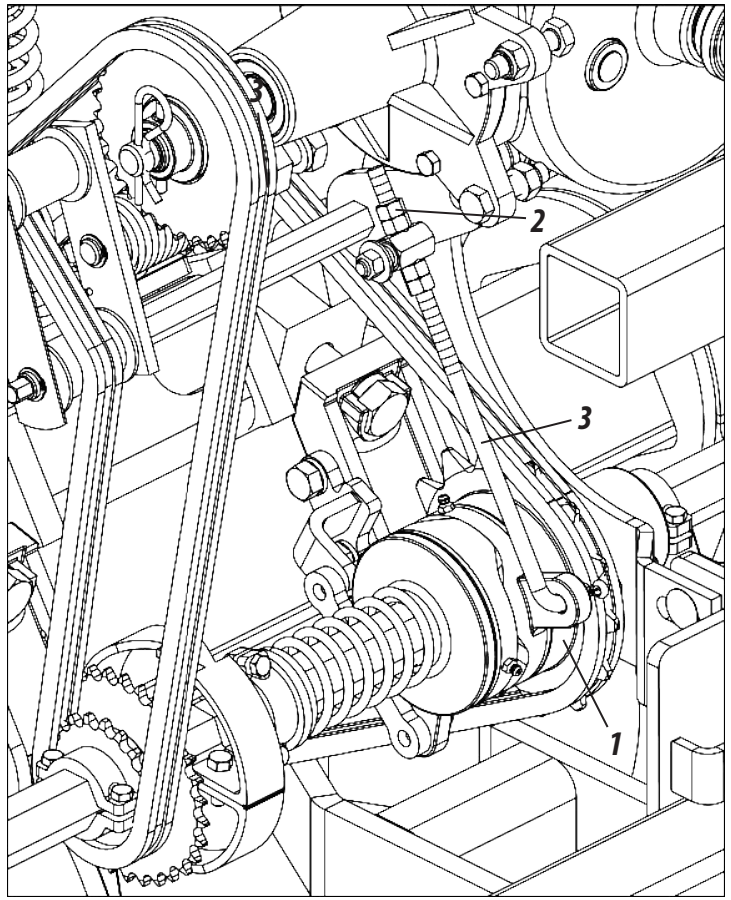



*Figure 25*

**IMPORTANT** | ***When adjusting the ratchet, repeat this process on all ratchets in the seeder.***

**CAUTION** | ***Non-compliance to this adjustment process can disable the ratchet.***

## CHOOSING THE APPROPRIATE DISC (FIGURE 26)

Always use the largest seeds as a parameter for selecting the appropriate disc.

The seeds must not remain jammed in the holes. Then to certify the appropriate disc, place the disc on a table and insert a seed in each hole. Then lift the disc, and all the seeds must remain on the table.

In order to avoid damaging the seed, the thickness of the spreading discs (1) must be equal or slightly larger than the seed.

In cases where the seed exceeds the thickness of the spreading discs (1), adjust the height of the seed as related to the disc, by using different thicknesses of spreading discs and rings with recesses.

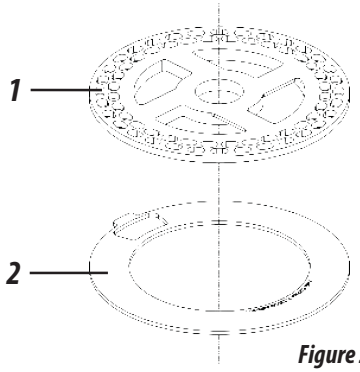


*Figure 26*

**COMMENT**

***The SP TOPOGRAFIC seeders are assembled with rings with recesses for the highest seeds.***

**IMPORTANT**

***Always use a spacer ring (2) together with the spreading discs (1). The total space of the assembly of the disc and ring must be always equal to 8.5mm in thickness for perfect system adjustment.***

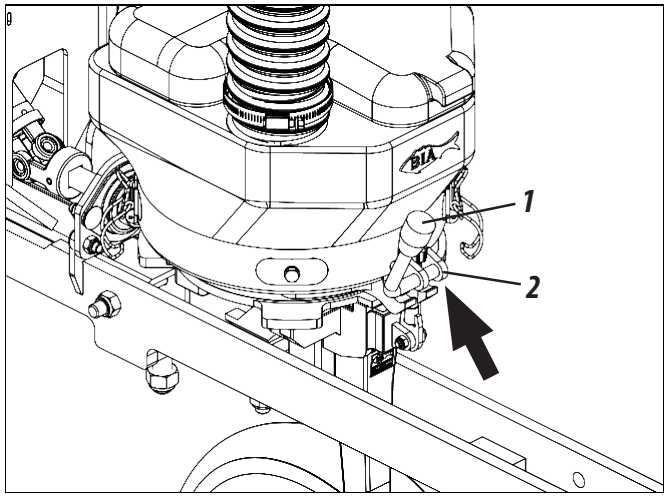
## CHANGING THE SEED DISCS (FIGURES 27)

Proceed as follows to change or replace a seed spreading disc:

Lower the lever (1) to disable the latch (2) from the seed storage compartment, **as shown in details "A" and "B".**

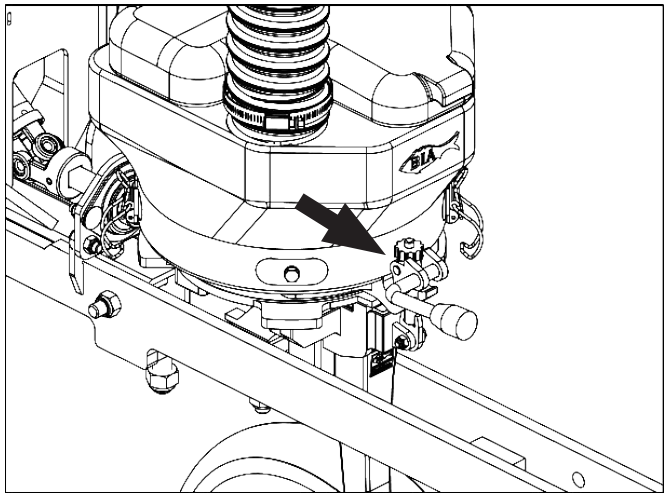
**COMMENT**

***If there are any seeds in the storage compartment, remove them before changing the disc and ring, thereby avoiding the spilling them on the ground for blocking the closure of the system.***



*Figures 27*

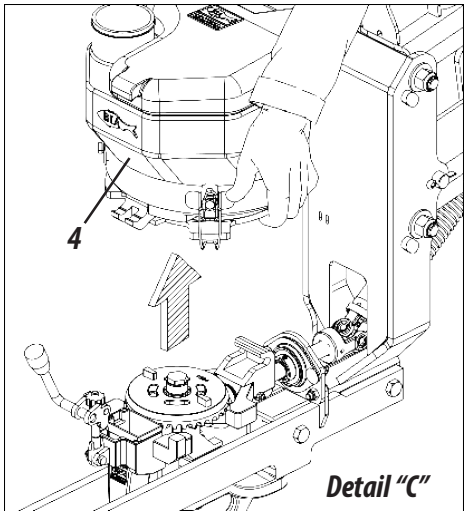
*Detail "A"*



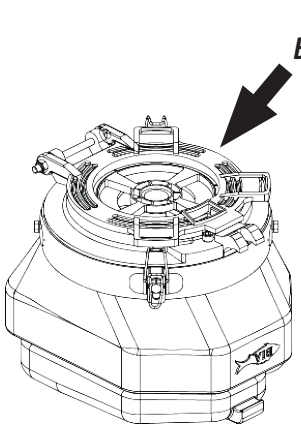
*Detail "B"*

# SEED SPREADING SYSTEM

**3rd Step:** Then, remove the seed box (4) from the row and turn it, leave the spreader base upside down, **as shown in details "C" and "D".**




*Detail "C"*

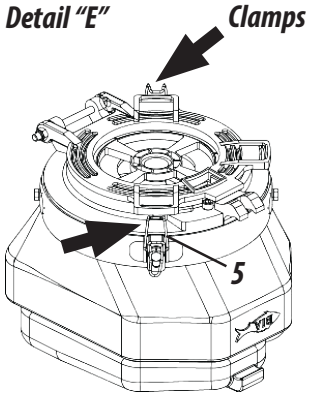


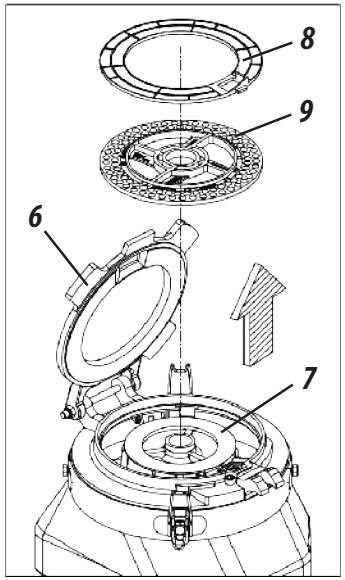

*Detail "D"*

*Figures 27*

**4th Step:** After, release the clamps (5), swing the base (6) and remove the base from the spreader (7) the ring (8) and the disc (9), replace them with the appropriate ring and disc for the crop being seeded, **as shown in details "E" and "F".**

*Detail "E"*

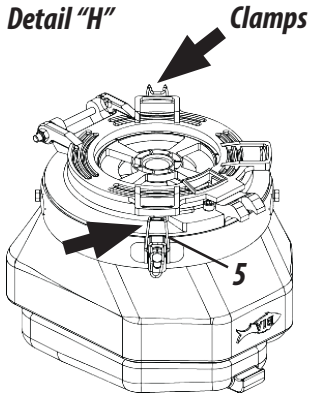


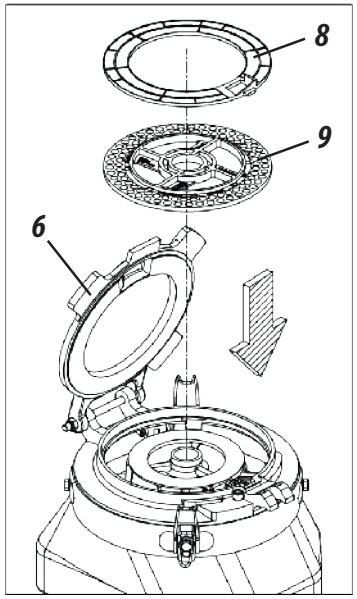




*Detail"F"*

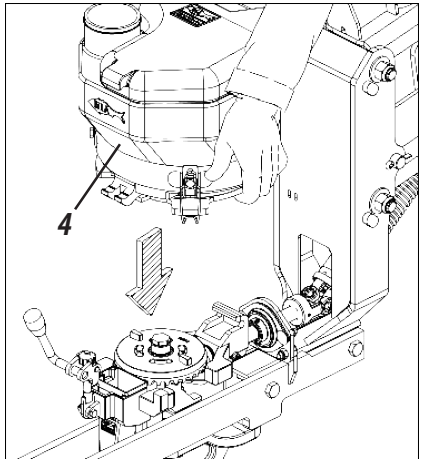
**5th Step:** When changing the ring (8) and the disc (9), swing the base (6) closing it. Following that, latch the clamps (5) again, **as shown in details "G" and "H".**

*Detail "H"*




*Detail "G"*

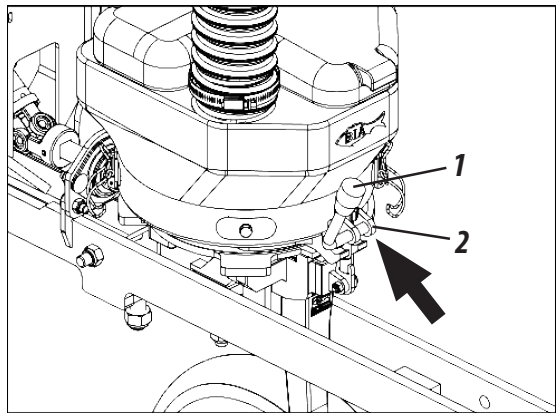


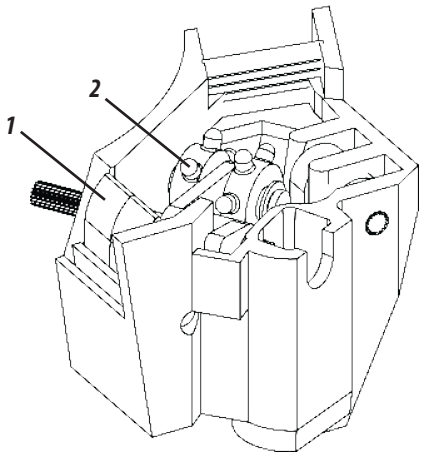

*Detail "I"*

*Detail "J"*

**6th Step:** Conclude by replacing the seeding box (4) on the row and latch it (3), fastening the lever (1) using the pin (2), **as shown in details "I" and "J".**

*Figures 27*

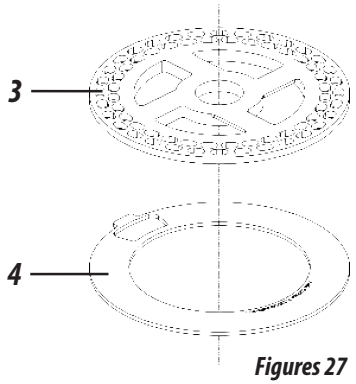





*Seed Dispensing Box*

## CAUTION

***Before changing the disc and ring to seed with a new seed, verify the conditions of the trigger (1) and the rosette (2), as the wear of these items interfere with the dispensing.. Whenever it is necessary replace them.***



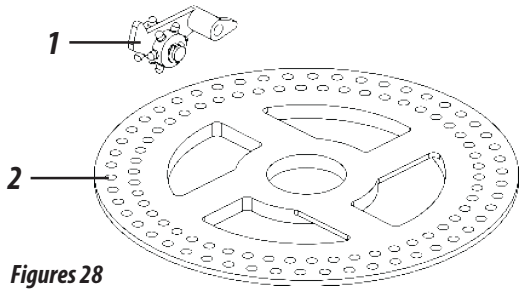

*Figures 27*

## IMPORTANT

***Change the spreading discs (3) and spacer rings (4), when they are excessively worn.***

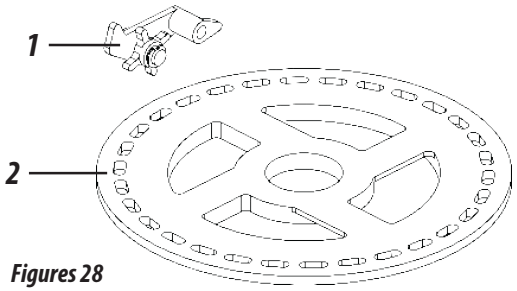
### SEED DISPENSER ROSETTE (FIGURES 28)

The seed spreading box are shipped from the factory with the trigger assembled with double rosettes (1), for double row discs (2).




*Figures 28*

For single row discs (1), proceed to change the trigger for double rosettes to the single rosette (2),
**as shown in the following figure.**




*Figures 28*

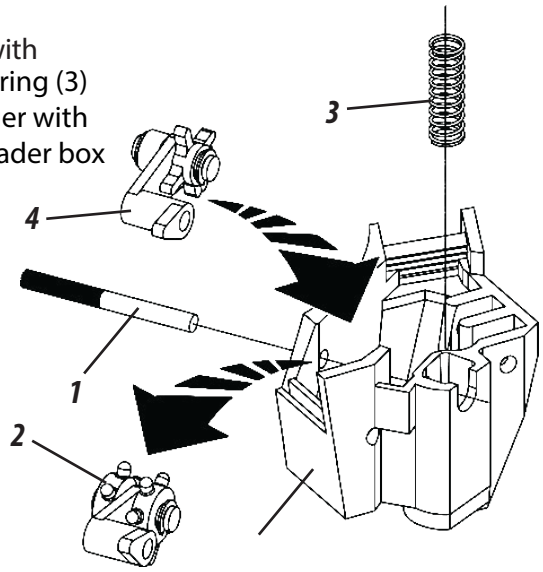
## IMPORTANT

***The seed spreader box is equipped with triggers and rosettes that can be cleaned internally, at least once daily for untreated seeds and twice daily for treated seeds.***

### CHANGING DOUBLE ROSETTES TO A SINGLE (FIGURE 29)

Para trocar o gatilho com rosetas duplas, pelo gatilho com roseta única, proceda da seguinte forma:

1- Remove the pin (1), the trigger with double rosettes (2), place the spring (3) in the fitting and insert the trigger with the single rosette (4) in the spreader box (5) and latch for the pin (1).




# SEED SPREADING SYSTEM

# SEED SPREADING SYSTEM

## SEED SPREADING DISCS AND RINGS (TABLES 03/04/05)

The **SP TOPOGRAFIC** seeder is shipped from the factory with some standard discs and rings and other optional models can be purchased individually.

| *Crop* | *Code* | *Standard discs* |
|---|---|---|
| Corn | 60200717980 | Disc w/. 28 holes ø 11.5mm (ø189 x 4.00mm) **Rampflow** |
| | 60200717999 | Disc w/. 28 holes ø 12.5mm (ø189 x 4.00mm) **Rampflow** |
| | 60200718006 | Disc w/. 28 holes ø 13.5mm (ø189 x 4.00mm) **Rampflow** |
| Sorghum | 52200101049 | Disc w/. 100 holes ø 5mm (ø35.5 x 189 x 3.00mm) w / ring |
| Soybean | 60200718014 | Disc w/. 90 holes ø 8mm (ø35.1 x 189 x 4.50mm) **Rampflow** |
| | 60200718022 | Disc w/. 90 holes ø 9mm (ø35.1 x 189 x 5.50mm) **Rampflow** |
| Disc | 52200101316 | Blunt Disc (ø35.5 x 189 x 5.50mm) w / ring |

***Tables 03***

| *Crop* | *Code* | *Standard Rings* |
|---|---|---|
| Corn | 60200158094 | Corn Ring Mod. U 4mm w/recess 1mm **Rampflow** |
| | 60200158140 | Corn Ring Mod. U 4mm w/recess 2mm **Rampflow** |
| | 60200158159 | Corn Ring Mod. U 4mm Flat **Rampflow** |
| Soybean | 60200158108 | Soybean Ring Mod. U 4mm Flat **Rampflow** |
| | 60200158116 | Soybean Ring Mod. U 3mm Flat **Rampflow** |
| | 60200158124 | Soybean Ring Mod. U 3mm w/Recess 0.8mm **Rampflow** |
| | 60200158132 | Soybean Ring Mod. U 4mm w/Recess 1mm **Rampflow** |

***Tables 04***

| *Crop* | *Code* | *Optional Discs and Rings* |
|---|---|---|
| Corn | 60200718162 | Disc w/. 28 holes ø 10.5mm (ø189 x 4.00mm) **Rampflow** |
| | 60200718170 | Disc w/. 28 holes ø 11mm (ø189 x 4.00mm) **Rampflow** |
| | 60200718189 | Disc w/. 28 holes ø 12mm (ø189 x 4.00mm) **Rampflow** |
| | 60200718197 | Disc w/. 28 holes ø 13mm (ø189 x 4.00mm) **Rampflow** |
| Sorghum | 52200101200 | Disc w/. 50 holes ø 5mm (ø35.5 x 189 x 3.00mm) w / ring |
| Bean | 60200700905 | Disc w/. 34 holes ø 10.5 x 20mm (ø35.5 x 189 x 8.50mm) w / ring |
| | 52200101219 | Disc w/. 64 holes ø 8 x 12.5mm (ø35.5 x 189 x 5.50mm) w / ring |
| Sunflower | 52200101235 | Disc w/. 30 holes ø 5.5 x 13.4mm (ø35.5 x 189 x 4.50mm) w / ring |
| Soybean | 60200718200 | Disc w/. 90 holes ø 7.3mm (ø35.1 x 189 x 4.50mm) **Rampflow** |
| | 60200758167 | Soybean Ring Mod. U 4mm Flat **Rampflow** |
| Canola / Sorghum | 52200101278 | Disc w/. 76 holes ø 5mm (ø35.5 x 186 x 3.00mm) w / ring |
| Cotton | 52200101286 | Disc w/. 64 holes ø 7 x 12mm (ø35.5 x 189 x 5.50mm) w / ring |
| Rice | 52200101294 | Disc w/. 40 holes ø 6.5 x 19.5mm (ø35.5 x 189 x 5.50mm) w / ring |
| Blunt | 52200101324 | Blunt Disc (ø35.5 x 189 x 4.00mm) w / ring |
| | 60200700891 | Blunt Disc (ø35.5 x 189 x 8.00mm) w / ring |

***Tables 05***

## USING POWDERED GRAPHITE OR INDUSTRIAL TALCUM POWDER (TABLE 06)

Graphite powder or industrial talcum powder can be mixed with the seeds for facilitating spreading and increasing the useful lifetime of the spreading mechanism.

| *Amount of graphite per kilo of seeds* | | | |
|---|---|---|---|
| *Seeders with spreading system type:* | *Seeds previously treated with insecticide* | | |
| | *Small round* | *Large round* | *Flat* |
| Horizontal Discs | 04 grams | 02 grams | 04 grams |

*Table 06*

## IMPORTANT

***Graphite must not be mixed before seeds are treated. Graphite must not be mixed with insecticide being applied.***
***For untreated seeds, use only half of the graphite cited in the table on the left.***

## SPEED BOX (FIGURE 30)

The seeders equipped with the Speed Box system (1), that activate the spreading system with simple adjustments, assure the change of quick rotations. Proceed as follows to make adjustments of seeds:

1- Select the desired amount on the tables and verify the corresponding combinations of the levers (2). **Example**: Position **F2** on the table, indicates that the levers with letters must be in the "**F**" (fertilizer) position and the lever with numbers must be in position **"2", as shown in figure 30.**

2- Remove the latch (3) to move the levers, pull the knob (4), and then adjust the levers as stated in the above example. When the combination is finished, return the knob (4) and then replace the latch (3).

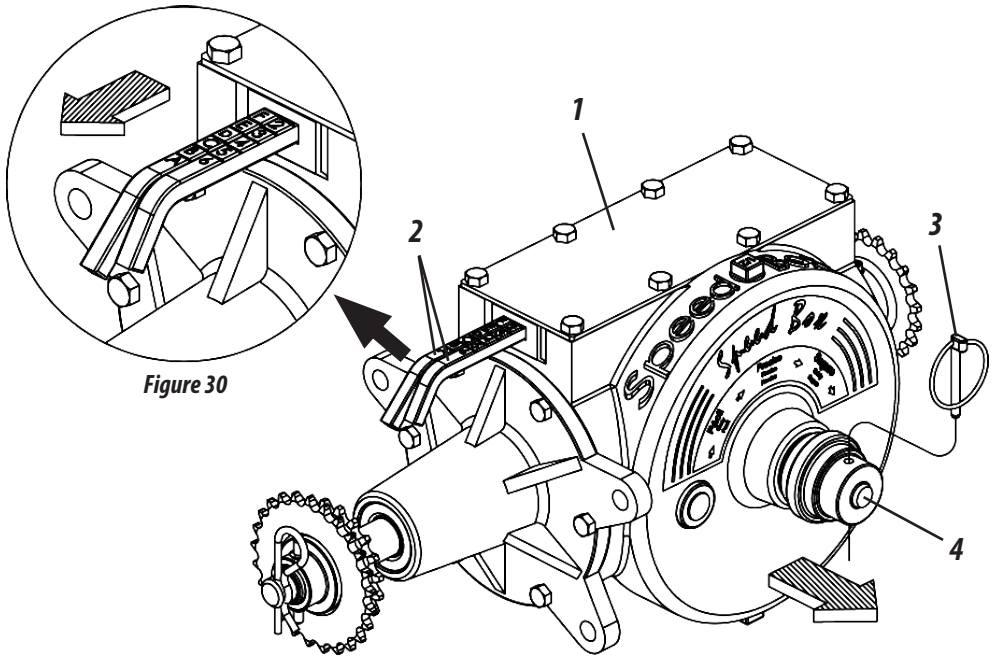



*Figure 30*

# SEED SPREADING SYSTEM

## SEED SPREADING ADJUSTMENT (FIGURE 31)

Seed adjustments are done using the Speed Box (1). Invert the chain from drive "**A**" gear to driven "**B**" gear **as shown in figure 31** in order to obtain more adjustments.
Proceed as follows to invert the chain:

1- First turn the chain stretcher (2), relieving the tightness from the chain (3).
2- After invert the chain (3) as needed for the working conditions.
3- Following that, release the chain stretcher (2) let it go back, and then the chain is tightened again (3).

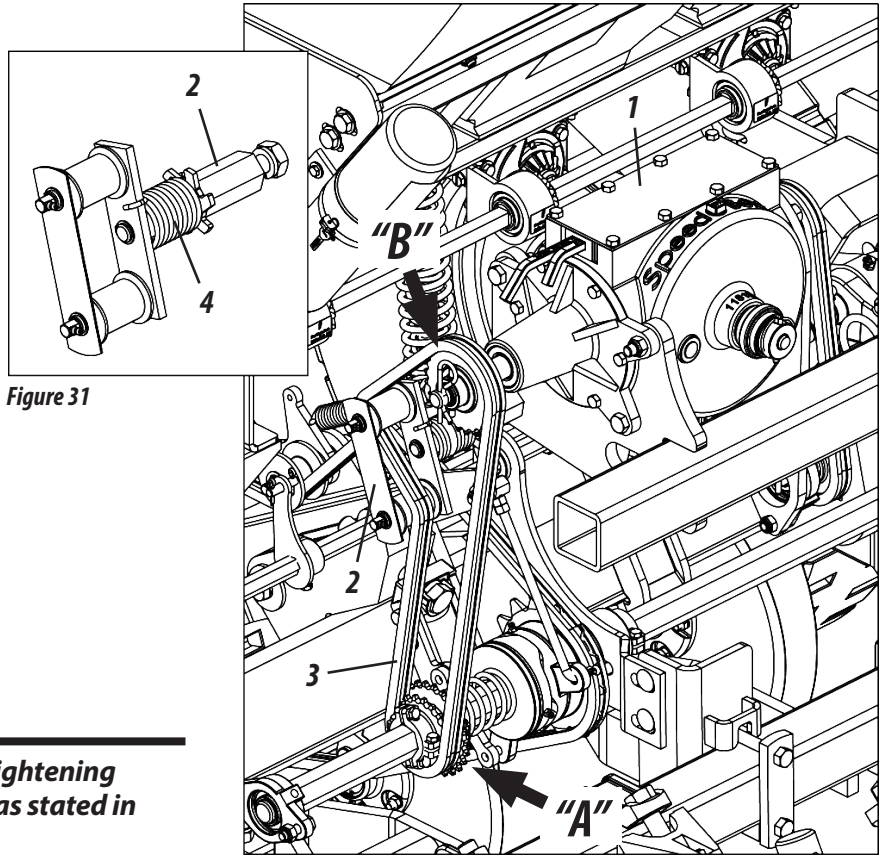



*Figure 31*

## IMPORTANT

***Verify the tightness of the chain after changing the gears. The stretcher (2) is equipped on a tightening spring (4) for increased flexibility. If necessary to increase pressure on the stretcher, proceed as stated in the instructions on page 70, figure 63.***

## SEED SPREADING TABLE (TABLES 07/08)

The seed spreading table is based on the number of holes in the spreading disc, by changing the gears and the number of seeds being spread.

## CAUTION

***If it is necessary to check the seeds being spread in the field, open the furrow and count the first seed found in 5 linear meters. Then, take that result and divide that by 5 linear meters and you will get the result in linear meters.***

| Seed Spreading Table based on linear meter - SP Topografic | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output gear from the Sprocket Axle ( Z3 ) | | | | | | | | 20 | Input gear to Speed Box ( Z4 ) | | | | | | | | 25 |
| Combination | Number of Holes in the Seed Spreading Disc | | | | | | | | | | | | | | | | |
| | 17 | 18 | 19 | 20 | 24 | 26 | 28 | 30 | 38 | 40 | 48 | 50 | 62 | 64 | 72 | 90 | 100 |
| F - 1 | 1,3 | 1,4 | 1,5 | 1,5 | 1,9 | 2,0 | 2,2 | 2,3 | 2,9 | 3,1 | 3,7 | 3,9 | 4,8 | 4,9 | 5,6 | 7,0 | 7,7 |
| F - 2 | 1,5 | 1,6 | 1,7 | 1,7 | 2,1 | 2,3 | 2,4 | 2,6 | 3,3 | 3,5 | 4,2 | 4,3 | 5,4 | 5,6 | 6,3 | 7,8 | 8,7 |
| E - 1 | 1,6 | 1,7 | 1,8 | 1,9 | 2,3 | 2,5 | 2,7 | 2,9 | 3,7 | 3,9 | 4,6 | 4,8 | 6,0 | 6,2 | 7,0 | 8,7 | 9,7 |
| F - 3 | 1,7 | 1,8 | 1,9 | 2,0 | 2,4 | 2,6 | 2,8 | 3,0 | 3,8 | 4,0 | 4,8 | 5,0 | 6,2 | 6,4 | 7,2 | 8,9 | 9,9 |
| E - 2 | 1,8 | 2,0 | 2,1 | 2,2 | 2,6 | 2,8 | 3,0 | 3,3 | 4,1 | 4,3 | 5,2 | 5,4 | 6,7 | 7,0 | 7,8 | 9,8 | 10,9 |
| D - 1 | 2,0 | 2,1 | 2,2 | 2,3 | 2,8 | 3,0 | 3,2 | 3,5 | 4,4 | 4,6 | 5,6 | 5,8 | 7,2 | 7,4 | 8,3 | 10,4 | 11,6 |
| F - 4 | 2,0 | 2,1 | 2,2 | 2,3 | 2,8 | 3,0 | 3,2 | 3,5 | 4,4 | 4,6 | 5,6 | 5,8 | 7,2 | 7,4 | 8,3 | 10,4 | 11,6 |
| E - 3 | 2,1 | 2,2 | 2,4 | 2,5 | 3,0 | 3,2 | 3,5 | 3,7 | 4,7 | 5,0 | 6,0 | 6,2 | 7,7 | 7,9 | 8,9 | 11,2 | 12,4 |
| D - 2 | 2,2 | 2,3 | 2,5 | 2,6 | 3,1 | 3,4 | 3,7 | 3,9 | 5,0 | 5,2 | 6,3 | 6,5 | 8,1 | 8,3 | 9,4 | 11,7 | 13,0 |
| C - 1 | 2,3 | 2,4 | 2,6 | 2,7 | 3,2 | 3,5 | 3,8 | 4,1 | 5,1 | 5,4 | 6,5 | 6,8 | 8,4 | 8,7 | 9,7 | 12,2 | 13,5 |
| F - 5 | 2,4 | 2,5 | 2,6 | 2,8 | 3,3 | 3,6 | 3,9 | 4,2 | 5,3 | 5,6 | 6,7 | 7,0 | 8,6 | 8,9 | 10,0 | 12,5 | 13,9 |
| E - 4 | 2,5 | 2,6 | 2,8 | 2,9 | 3,5 | 3,8 | 4,1 | 4,3 | 5,5 | 5,8 | 7,0 | 7,2 | 9,0 | 9,3 | 10,4 | 13,0 | 14,5 |
| D - 3 | 2,5 | 2,7 | 2,8 | 3,0 | 3,6 | 3,9 | 4,2 | 4,5 | 5,7 | 6,0 | 7,2 | 7,5 | 9,2 | 9,5 | 10,7 | 13,4 | 14,9 |
| C - 2 | 2,6 | 2,7 | 2,9 | 3,0 | 3,7 | 4,0 | 4,3 | 4,6 | 5,8 | 6,1 | 7,3 | 7,6 | 9,4 | 9,7 | 11,0 | 13,7 | 15,2 |
| B - 1 | 2,6 | 2,8 | 2,9 | 3,1 | 3,7 | 4,0 | 4,3 | 4,6 | 5,9 | 6,2 | 7,4 | 7,7 | 9,6 | 9,9 | 11,1 | 13,9 | 15,5 |
| A - 1 | 3,0 | 3,1 | 3,3 | 3,5 | 4,2 | 4,5 | 4,9 | 5,2 | 6,6 | 7,0 | 8,3 | 8,7 | 10,8 | 11,1 | 12,5 | 15,6 | 17,4 |
| A - 2 | 3,3 | 3,5 | 3,7 | 3,9 | 4,7 | 5,1 | 5,5 | 5,9 | 7,4 | 7,8 | 9,4 | 9,8 | 12,1 | 12,5 | 14,1 | 17,6 | 19,6 |
| B - 3 | 3,4 | 3,6 | 3,8 | 4,0 | 4,8 | 5,2 | 5,6 | 6,0 | 7,6 | 7,9 | 9,5 | 9,9 | 12,3 | 12,7 | 14,3 | 17,9 | 19,9 |
| C - 4 | 3,4 | 3,7 | 3,9 | 4,1 | 4,9 | 5,3 | 5,7 | 6,1 | 7,7 | 8,1 | 9,7 | 10,1 | 12,6 | 13,0 | 14,6 | 18,3 | 20,3 |
| D - 5 | 3,5 | 3,8 | 4,0 | 4,2 | 5,0 | 5,4 | 5,8 | 6,3 | 7,9 | 8,3 | 10,0 | 10,4 | 12,9 | 13,4 | 15,0 | 18,8 | 20,9 |
| E - 6 | 3,7 | 3,9 | 4,1 | 4,3 | 5,2 | 5,7 | 6,1 | 6,5 | 8,3 | 8,7 | 10,4 | 10,9 | 13,5 | 13,9 | 15,6 | 19,6 | 21,7 |
| A - 3 | 3,8 | 4,0 | 4,2 | 4,5 | 5,4 | 5,8 | 6,3 | 6,7 | 8,5 | 8,9 | 10,7 | 11,2 | 13,9 | 14,3 | 16,1 | 20,1 | 22,4 |
| B - 4 | 3,9 | 4,2 | 4,4 | 4,6 | 5,6 | 6,0 | 6,5 | 7,0 | 8,8 | 9,3 | 11,1 | 11,6 | 14,4 | 14,8 | 16,7 | 20,9 | 23,2 |
| C - 5 | 4,1 | 4,4 | 4,6 | 4,9 | 5,8 | 6,3 | 6,8 | 7,3 | 9,2 | 9,7 | 11,7 | 12,2 | 15,1 | 15,6 | 17,5 | 21,9 | 24,3 |
| D - 6 | 4,4 | 4,7 | 5,0 | 5,2 | 6,3 | 6,8 | 7,3 | 7,8 | 9,9 | 10,4 | 12,5 | 13,0 | 16,2 | 16,7 | 18,8 | 23,5 | 26,1 |
| A - 4 | 4,4 | 4,7 | 5,0 | 5,2 | 6,3 | 6,8 | 7,3 | 7,8 | 9,9 | 10,4 | 12,5 | 13,0 | 16,2 | 16,7 | 18,8 | 23,5 | 26,1 |
| B - 5 | 4,7 | 5,0 | 5,3 | 5,6 | 6,7 | 7,2 | 7,8 | 8,3 | 10,6 | 11,1 | 13,4 | 13,9 | 17,2 | 17,8 | 20,0 | 25,0 | 27,8 |
| C - 6 | 5,2 | 5,5 | 5,8 | 6,1 | 7,3 | 7,9 | 8,5 | 9,1 | 11,6 | 12,2 | 14,6 | 15,2 | 18,9 | 19,5 | 21,9 | 27,4 | 30,4 |
| A - 5 | 5,3 | 5,6 | 5,9 | 6,3 | 7,5 | 8,1 | 8,8 | 9,4 | 11,9 | 12,5 | 15,0 | 15,6 | 19,4 | 20,0 | 22,5 | 28,2 | 31,3 |
| B - 6 | 5,9 | 6,3 | 6,6 | 7,0 | 8,3 | 9,0 | 9,7 | 10,4 | 13,2 | 13,9 | 16,7 | 17,4 | 21,6 | 22,3 | 25,0 | 31,3 | 34,8 |
| A - 6 | 6,6 | 7,0 | 7,4 | 7,8 | 9,4 | 10,2 | 11,0 | 11,7 | 14,9 | 15,6 | 18,8 | 19,6 | 24,3 | 25,0 | 28,2 | 35,2 | 39,1 |

# SEED SPREADING SYSTEM

*Table 08*

| Seed Spreading Table based on linear meter - SP Topografic | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output gear from the Sprocket Axle ( Z3 ) | | | | | | | | 25 | Input gear to Speed Box ( Z4 ) | | | | | | | | 20 |
| Combination | Number of Holes in the Seed Spreading Disc | | | | | | | | | | | | | | | | |
| | 17 | 18 | 19 | 20 | 24 | 26 | 28 | 30 | 38 | 40 | 48 | 50 | 62 | 64 | 72 | 90 | 100 |
| F - 1 | 2,1 | 2,2 | 2,3 | 2,4 | 2,9 | 3,1 | 3,4 | 3,6 | 4,6 | 4,8 | 5,8 | 6,0 | 7,5 | 7,7 | 8,7 | 10,9 | 12,1 |
| F - 2 | 2,3 | 2,4 | 2,6 | 2,7 | 3,3 | 3,5 | 3,8 | 4,1 | 5,2 | 5,4 | 6,5 | 6,8 | 8,4 | 8,7 | 9,8 | 12,2 | 13,6 |
| E - 1 | 2,6 | 2,7 | 2,9 | 3,0 | 3,6 | 3,9 | 4,2 | 4,5 | 5,7 | 6,0 | 7,2 | 7,5 | 9,4 | 9,7 | 10,9 | 13,6 | 15,1 |
| F - 3 | 2,6 | 2,8 | 2,9 | 3,1 | 3,7 | 4,0 | 4,3 | 4,7 | 5,9 | 6,2 | 7,5 | 7,8 | 9,6 | 9,9 | 11,2 | 14,0 | 15,5 |
| E - 2 | 2,9 | 3,1 | 3,2 | 3,4 | 4,1 | 4,4 | 4,8 | 5,1 | 6,5 | 6,8 | 8,1 | 8,5 | 10,5 | 10,9 | 12,2 | 15,3 | 17,0 |
| D - 1 | 3,1 | 3,3 | 3,4 | 3,6 | 4,3 | 4,7 | 5,1 | 5,4 | 6,9 | 7,2 | 8,7 | 9,1 | 11,2 | 11,6 | 13,0 | 16,3 | 18,1 |
| F - 4 | 3,1 | 3,3 | 3,4 | 3,6 | 4,3 | 4,7 | 5,1 | 5,4 | 6,9 | 7,2 | 8,7 | 9,1 | 11,2 | 11,6 | 13,0 | 16,3 | 18,1 |
| E - 3 | 3,3 | 3,5 | 3,7 | 3,9 | 4,7 | 5,0 | 5,4 | 5,8 | 7,4 | 7,8 | 9,3 | 9,7 | 12,0 | 12,4 | 14,0 | 17,5 | 19,4 |
| D - 2 | 3,5 | 3,7 | 3,9 | 4,1 | 4,9 | 5,3 | 5,7 | 6,1 | 7,7 | 8,1 | 9,8 | 10,2 | 12,6 | 13,0 | 14,7 | 18,3 | 20,4 |
| C - 1 | 3,6 | 3,8 | 4,0 | 4,2 | 5,1 | 5,5 | 5,9 | 6,3 | 8,0 | 8,5 | 10,1 | 10,6 | 13,1 | 13,5 | 15,2 | 19,0 | 21,1 |
| F - 5 | 3,7 | 3,9 | 4,1 | 4,3 | 5,2 | 5,7 | 6,1 | 6,5 | 8,3 | 8,7 | 10,4 | 10,9 | 13,5 | 13,9 | 15,6 | 19,6 | 21,7 |
| E - 4 | 3,8 | 4,1 | 4,3 | 4,5 | 5,4 | 5,9 | 6,3 | 6,8 | 8,6 | 9,1 | 10,9 | 11,3 | 14,0 | 14,5 | 16,3 | 20,4 | 22,6 |
| D - 3 | 4,0 | 4,2 | 4,4 | 4,7 | 5,6 | 6,1 | 6,5 | 7,0 | 8,8 | 9,3 | 11,2 | 11,6 | 14,4 | 14,9 | 16,8 | 21,0 | 23,3 |
| C - 2 | 4,0 | 4,3 | 4,5 | 4,8 | 5,7 | 6,2 | 6,7 | 7,1 | 9,0 | 9,5 | 11,4 | 11,9 | 14,7 | 15,2 | 17,1 | 21,4 | 23,8 |
| B - 1 | 4,1 | 4,3 | 4,6 | 4,8 | 5,8 | 6,3 | 6,8 | 7,2 | 9,2 | 9,7 | 11,6 | 12,1 | 15,0 | 15,5 | 17,4 | 21,7 | 24,1 |
| A - 1 | 4,6 | 4,9 | 5,2 | 5,4 | 6,5 | 7,1 | 7,6 | 8,1 | 10,3 | 10,9 | 13,0 | 13,6 | 16,8 | 17,4 | 19,6 | 24,4 | 27,2 |
| A - 2 | 5,2 | 5,5 | 5,8 | 6,1 | 7,3 | 7,9 | 8,6 | 9,2 | 11,6 | 12,2 | 14,7 | 15,3 | 18,9 | 19,6 | 22,0 | 27,5 | 30,6 |
| B - 3 | 5,3 | 5,6 | 5,9 | 6,2 | 7,5 | 8,1 | 8,7 | 9,3 | 11,8 | 12,4 | 14,9 | 15,5 | 19,2 | 19,9 | 22,4 | 27,9 | 31,0 |
| C - 4 | 5,4 | 5,7 | 6,0 | 6,3 | 7,6 | 8,2 | 8,9 | 9,5 | 12,0 | 12,7 | 15,2 | 15,8 | 19,6 | 20,3 | 22,8 | 28,5 | 31,7 |
| D - 5 | 5,5 | 5,9 | 6,2 | 6,5 | 7,8 | 8,5 | 9,1 | 9,8 | 12,4 | 13,0 | 15,6 | 16,3 | 20,2 | 20,9 | 23,5 | 29,3 | 32,6 |
| E - 6 | 5,8 | 6,1 | 6,5 | 6,8 | 8,1 | 8,8 | 9,5 | 10,2 | 12,9 | 13,6 | 16,3 | 17,0 | 21,1 | 21,7 | 24,4 | 30,6 | 34,0 |
| A - 3 | 5,9 | 6,3 | 6,6 | 7,0 | 8,4 | 9,1 | 9,8 | 10,5 | 13,3 | 14,0 | 16,8 | 17,5 | 21,7 | 22,4 | 25,1 | 31,4 | 34,9 |
| B - 4 | 6,2 | 6,5 | 6,9 | 7,2 | 8,7 | 9,4 | 10,1 | 10,9 | 13,8 | 14,5 | 17,4 | 18,1 | 22,5 | 23,2 | 26,1 | 32,6 | 36,2 |
| C - 5 | 6,5 | 6,8 | 7,2 | 7,6 | 9,1 | 9,9 | 10,6 | 11,4 | 14,5 | 15,2 | 18,3 | 19,0 | 23,6 | 24,3 | 27,4 | 34,2 | 38,0 |
| D - 6 | 6,9 | 7,3 | 7,7 | 8,1 | 9,8 | 10,6 | 11,4 | 12,2 | 15,5 | 16,3 | 19,6 | 20,4 | 25,3 | 26,1 | 29,3 | 36,7 | 40,7 |
| A - 4 | 6,9 | 7,3 | 7,7 | 8,1 | 9,8 | 10,6 | 11,4 | 12,2 | 15,5 | 16,3 | 19,6 | 20,4 | 25,3 | 26,1 | 29,3 | 36,7 | 40,7 |
| B - 5 | 7,4 | 7,8 | 8,3 | 8,7 | 10,4 | 11,3 | 12,2 | 13,0 | 16,5 | 17,4 | 20,9 | 21,7 | 26,9 | 27,8 | 31,3 | 39,1 | 43,5 |
| C - 6 | 8,1 | 8,6 | 9,0 | 9,5 | 11,4 | 12,4 | 13,3 | 14,3 | 18,1 | 19,0 | 22,8 | 23,8 | 29,5 | 30,4 | 34,2 | 42,8 | 47,5 |
| A - 5 | 8,3 | 8,8 | 9,3 | 9,8 | 11,7 | 12,7 | 13,7 | 14,7 | 18,6 | 19,6 | 23,5 | 24,4 | 30,3 | 31,3 | 35,2 | 44,0 | 48,9 |
| B - 6 | 9,2 | 9,8 | 10,3 | 10,9 | 13,0 | 14,1 | 15,2 | 16,3 | 20,6 | 21,7 | 26,1 | 27,2 | 33,7 | 34,8 | 39,1 | 48,9 | 54,3 |
| A - 6 | 10,4 | 11,0 | 11,6 | 12,2 | 14,7 | 15,9 | 17,1 | 18,3 | 23,2 | 24,4 | 29,3 | 30,6 | 37,9 | 39,1 | 44,0 | 55,0 | 61,1 |

## FERTILIZER CONDUCTOR - FERTISYSTEM (FIGURES 32/33)

Fit the angled nozzles (1) on the discharge from the fertisystem conductor for conducting the fertilizer to the soil, using the clamps (3). Then place the hose (4) in the angled nozzle (1) through the clamps (5), **as shown in figure 32.**

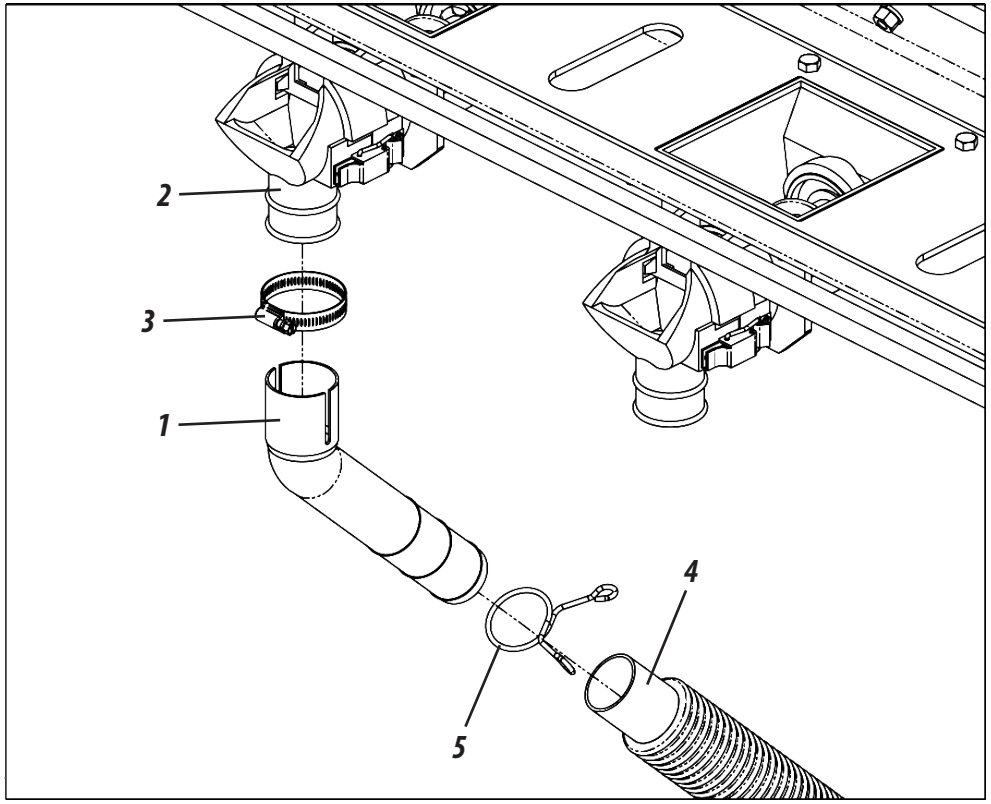



*Figure 32*

The fertisystem spreading system is equipped with safety discharges to assure performance of the system to prevent damaging it. In case of blockage of the hose and the dispenser, proceed by cleaning the dispenser until the end of the hose near the furrow tine or double disc, as the blockage of the system can be caused by roots, pieces of plastic and other objects, **as shown in figure 33.**

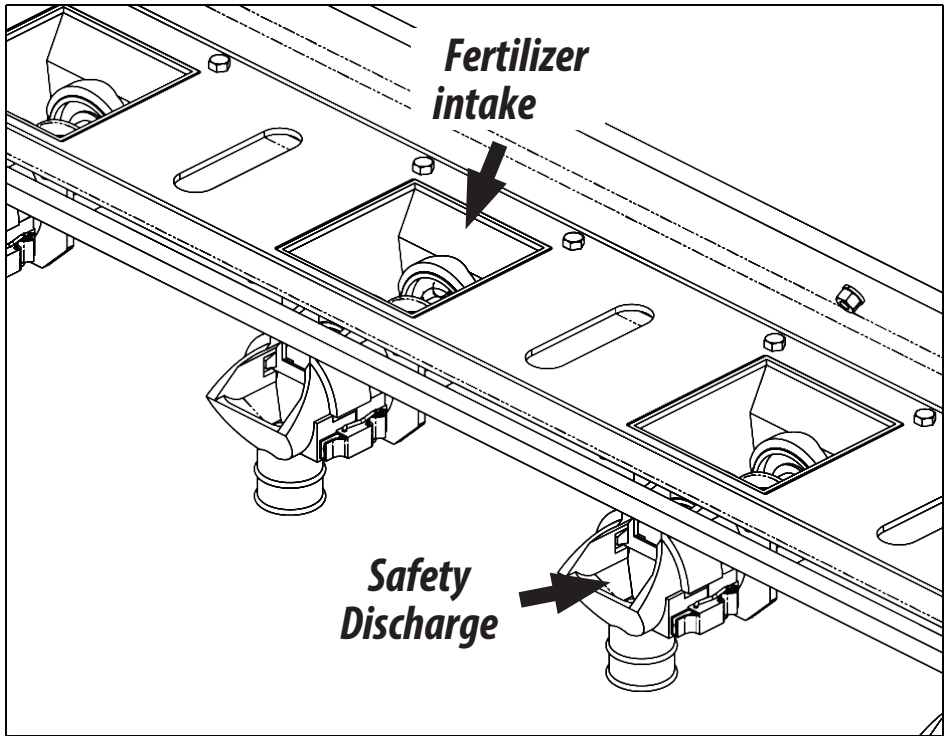
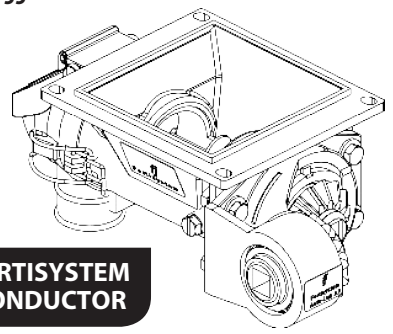



*Figure 33*



**FERTISYSTEM CONDUCTOR**

**⚠ CAUTION**

***Verify the spreaders and hoses daily and proceed in cleaning their discharges. When the fertilizer is not pure or damp, proceed in cleaning more frequently.***

# FERTILIZER SPREADING SYSTEM

# FERTILIZER SPREADING SYSTEM

## SPEED BOX (FIGURE 34)

Seeders are equipped with the Speed Box system (1) that activates the spreading system by performing simple adjustments, assuring quick changes in rotation. Proceed in adjusting the seed flow as follows:

1- Select the desired amount from the tables and verify the corresponding lever combination (2). **Example**: Position **F2** on the table, indicates that the letter lever must be in the "**F**" (Fertilizer) position and the number lever must be in the "**2**" position, **as shown in figure 34.**

2- Remove the latch (3) to move the levers, pull the knob (4), and then adjust the levers according to the example above. After concluding the combination, press the knob back (4) and replace the latch (3).

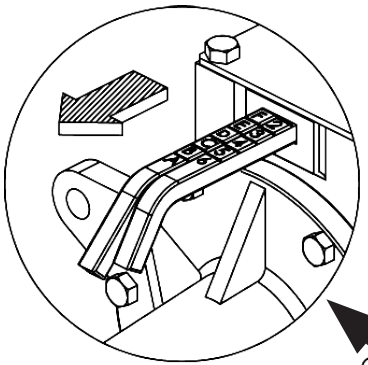
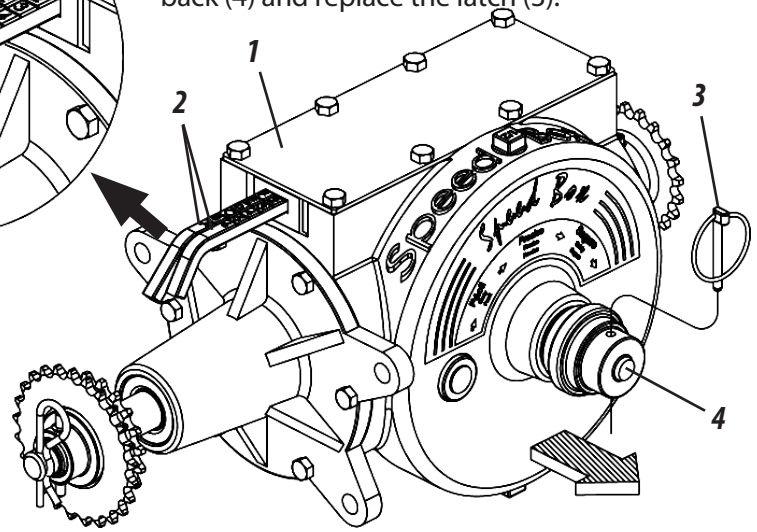


*Figure 34*




## ADJUSTMENT FOR SPREADING FERTILIZER (FIGURE 35)

The adjustment of seeds is done by using the Speed Box (1). In order to obtain more adjustment, Invert the chain from drive "**A**" gear to driven **"B" gear as shown in figure 35**. To invert the chain proceed as follows:

1- First turn the chain stretcher (2), relieving the tightness from the chain (3).
2- After invert the chain (3) as needed for the working conditions.
3- Following that, release the chain stretcher (2) let it go back, and then the chain is tightened again (3).

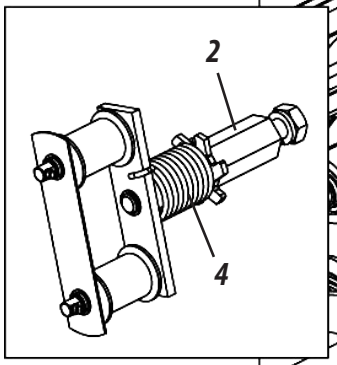
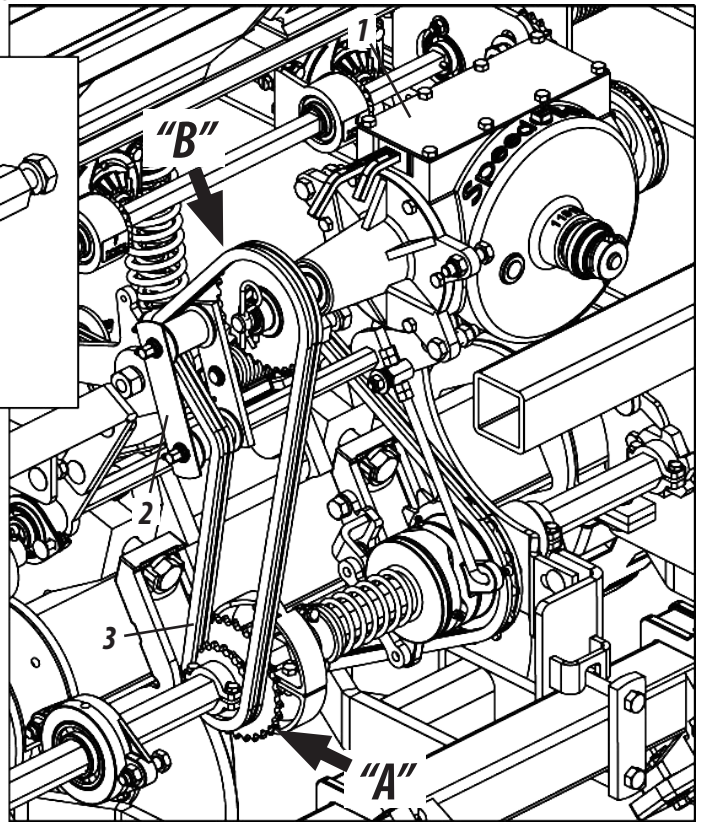



*Figure 35*




**IMPORTANT**

***After proceeding in changing the gears, verify the tightness of the chain. The chain stretcher (2) is equipped with a tightening spring (4) for flexibility of the same. If more pressure is necessary in the chain stretcher, proceed as stated in the instructions on page 70, figure 63.***

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

*Cmts: Spring with 2" pitch*

# FERTILIZER SPREADING SYSTEM

# FERTILIZER SPREADING SYSTEM

*Cmts: Spring with 2" pitch*

*Table 10*

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

## PRACTICAL CALCULATION FOR SPREADING FERTILIZER

Use the following formula to calculate the amount of fertilizer in spacing and different areas then presented on the spreading table, proceed as follows:

1- Define the spacing between rows and the amount of fertilizer to be spread per acre (Aa) or Hectare (Ha).

2- ***Example:*** Seeder with 0.4 meter spacing for spreading 500 kgs of fertilizer per Ha, then use the following formula:

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

**Formula Data:**
**E** = Spacing between rows (m)
**Q** = Quantity of fertilizer being spread [kg]
**A** = Area being fertilizer [$m^2$]
**D** = Distance 50 meters (teste)
**X** = Grams of fertilizer per 50 meters

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

$X = 22.50 \times 50 = 1.125$

**X = 1.125 grams in 50 meters per row**

## COMMENTS

***Adjust the seeder for spreading the quantity found in the solution, or closest to the space predetermined for the test to obtain the solution.***

## CAUTION

***The speed variation while operating, affects the uniform spreading of seeds. When changing the seed batch or fertilizer brand, it is necessary to perform the measurement again. After the first day in working on the crop, verify the adjustments again.***

## CALCULATION

## PRACTICAL TEST FOR MEASURING THE QUANTITY FOR SPREADING FERTILIZER AND SEEDS

1- Perform the quantity test being spread in the actual crop location in order to achieve greater precision in fertilizing or seeding, as in each field, there is a specific condition. Proceed as follows:

2- As much as possible, always use the same tractor and operator to perform the work on the crop.

3- Verify and always maintain the correct tire pressure in the seeder **(70 lb/in² for each tire).**

4- Mark the test distance from the table, we have chosen to use 50 linear meters.

5- Fill the seed storage compartment at least halfway full. Travel on an average of 10 meters outside of the test area, so that the fertilizer and seeds fill the dispensers.

6- Seal the discharge from the seed nozzle and place recipients for collecting the fertilizer from the discharge. Move the tractor to the marked area, always at the same speed for planting, from 5 to 7 Km/hr.

7- After traveling the marked space, remove the seal from the seed nozzle and collect them for counting and also collect the fertilizer for weighing the amount collected. If necessary increase or decrease the amount of seeds and fertilizer being spread, verify the table.

8- When the desired amount is reached, while still in the area, move the tractor at the same speed, but let the fertilizer and seeds fall on the ground to after check the uniformity in spreading.

## IMPORTANT

***We suggest performing a practical test in spreading fertilizer and seeds along a 50 mts course, so that afterwards the results on the fertilizer and seeds can be verified.***

## FINISHING SYSTEM W/ELECTRIC ACTIVATOR (FIGURES 36/37 / TABLES 11/12)

The finishing system w/electric activator (1) makes it possible to operate only on one side of the seeder, which means, half of the rows.

| *Finishing System w/ Electric Activator Elétrico* | |
|---|---|
| ***Model*** | ***Codes:*** |
| ***SP TOPOGRAFIC 4500*** | 55280108080 |
| ***SP TOPOGRAFIC 5500*** | 55280107858 |
| ***SP TOPOGRAFIC 6500*** | 55280108331 |
| ***SP TOPOGRAFIC 7500*** | 55280107912 |
| ***SP TOPOGRAFIC 8500*** | - |
| ***SP TOPOGRAFIC 9500*** | 5528010804-8 |

***Table 11***

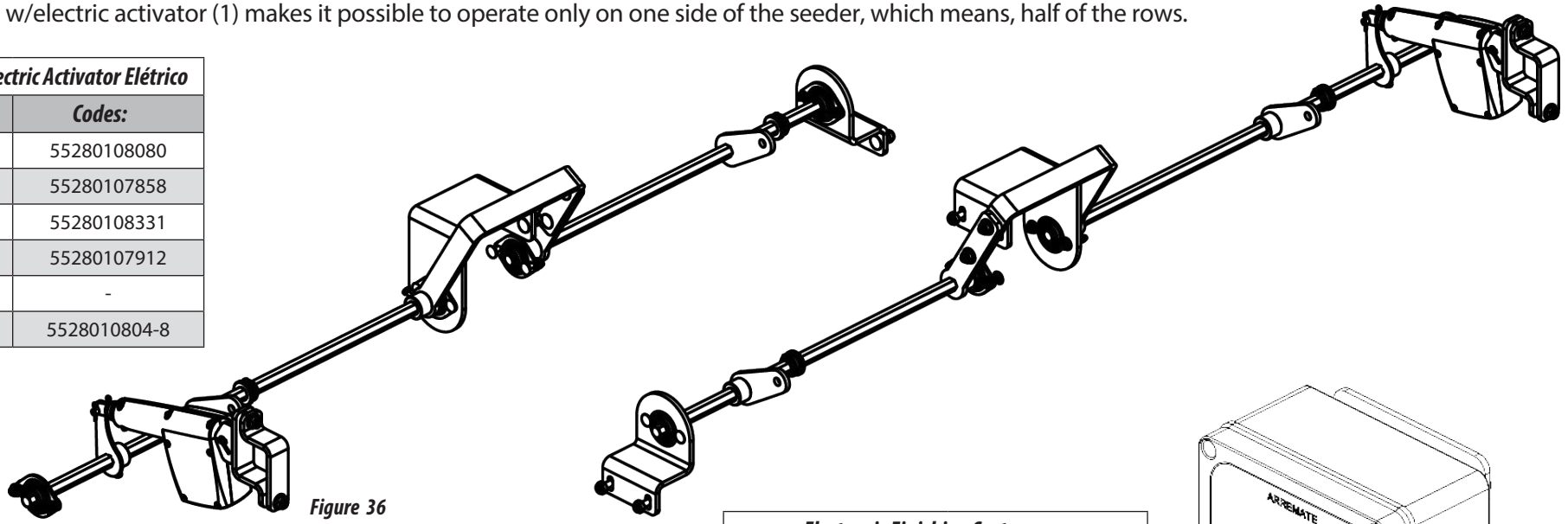


***Figure 36***

| *Electronic Finishing System* | |
|---|---|
| ***Model*** | ***Codes::*** |
| ***SP TOPOGRAFIC 4500*** | 55280108170 |
| ***SP TOPOGRAFIC 5500*** | 55280108188 |
| ***SP TOPOGRAFIC 6500*** | 55280108196 |
| ***SP TOPOGRAFIC 7500*** | 55280108200 |
| ***SP TOPOGRAFIC 8500*** | 55280108218 |
| ***SP TOPOGRAFIC 9500*** | 55280108161 |

***Table 12***

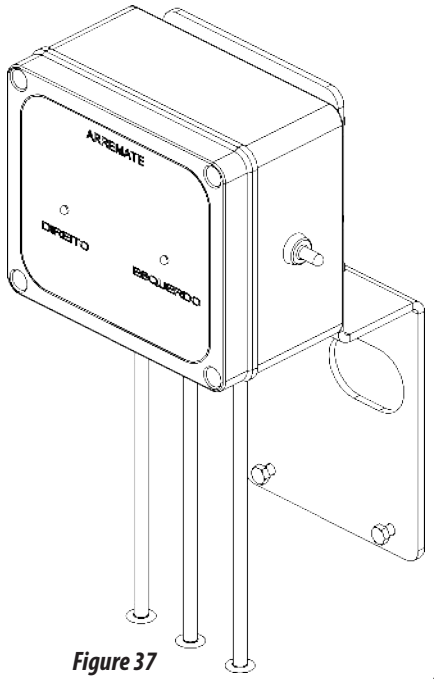
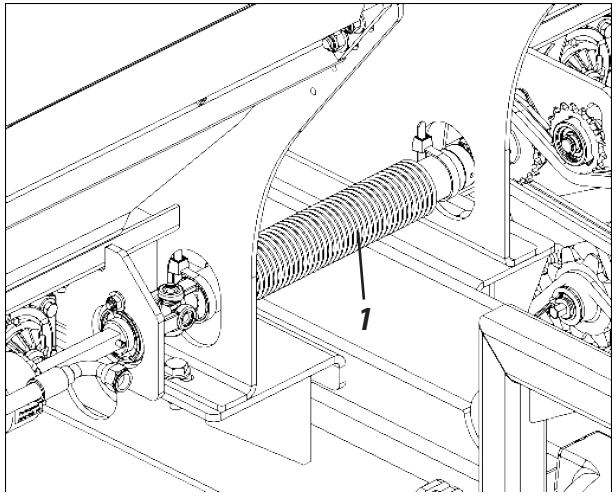
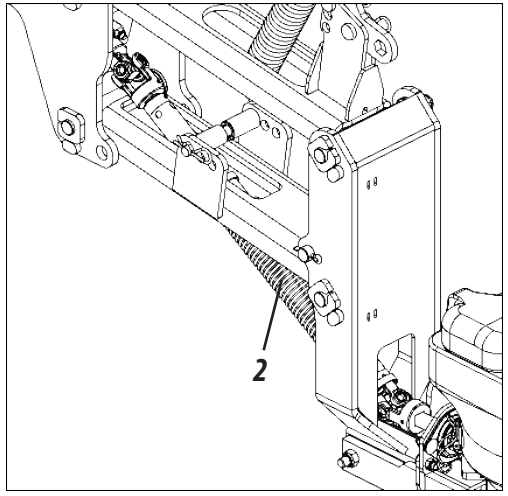



***Figure 37***

## FERTILIZER AND SEED TRANSMISSION AXLE SYSTEM (FIGURES 38)

The **SP Topografic** is equipped with a fertilizer (1) and a seed (2) transmission axle system.




*Figures 38*

***Fertilizer transmission axle***

***Seed transmission axle***

## NON-POTABLE WATER STORAGE COMPARTMENT (FIGURE 39)

The **SP Topografic** is equipped with a non-potable (1) water storage compartment that must be used only for general cleaning and never be ingested under any circumstances.


## ⚠ CAUTION

***Do not drink the water from this storage compartment (1) as it is improper for human consumption "Non-Potable". Ignoring this warning can cause risks to health.***

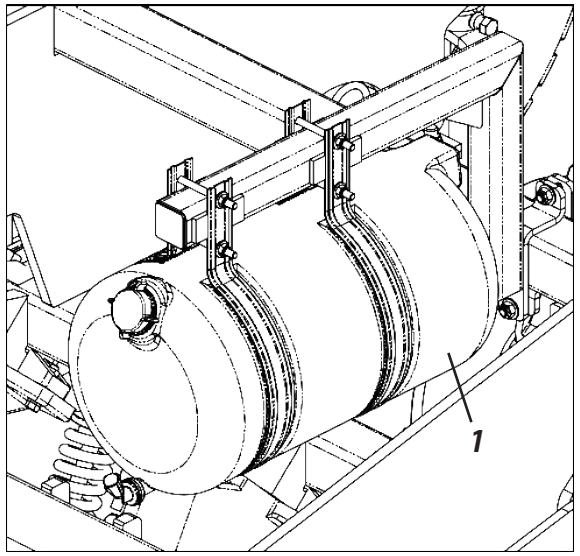
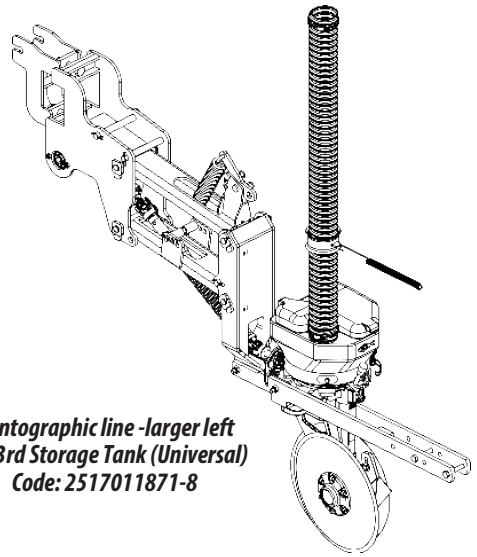


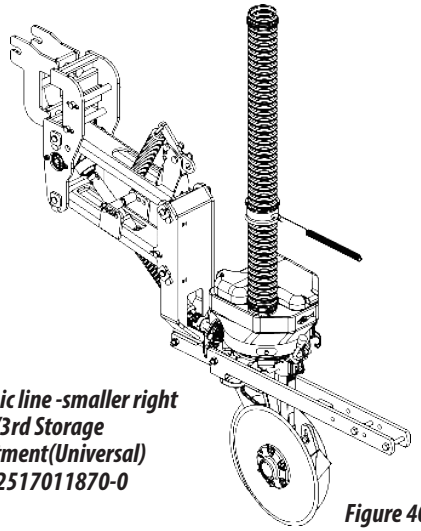

*Figure 39*

# SEED ROWS

## ROW MODELS - STANDARD (FIGURES 40)



*Pantographic line -larger left for/3rd Storage Tank (Universal) Code: 2517011871-8*

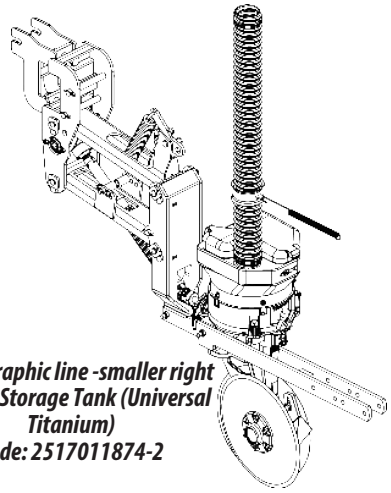


*Pantographic line -smaller right for/3rd Storage Compartment(Universal) Code: 2517011870-0*

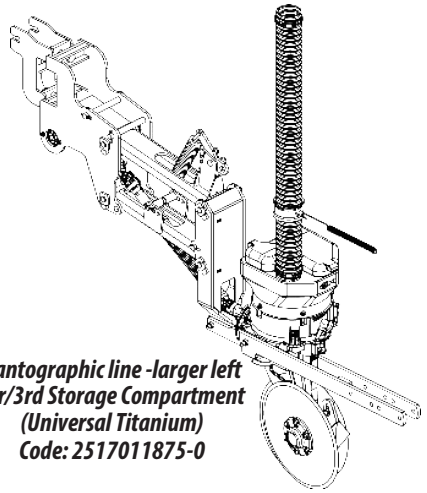
*Figure 40*

## OPTIONAL ROW MODELS - (FIGURES 41)

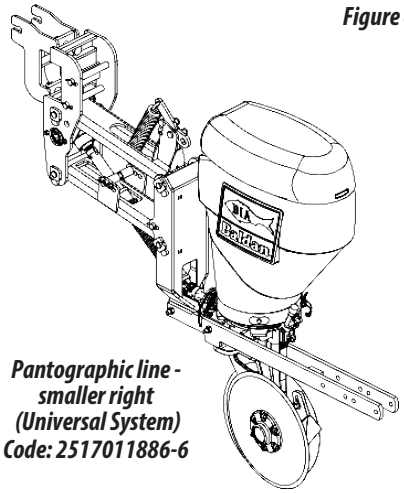
*Figure 41*



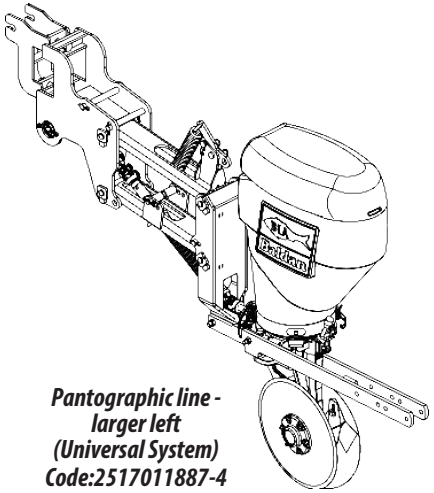
*Pantographic line -smaller right for/3rd Storage Tank (Universal Titanium) Code: 2517011874-2*



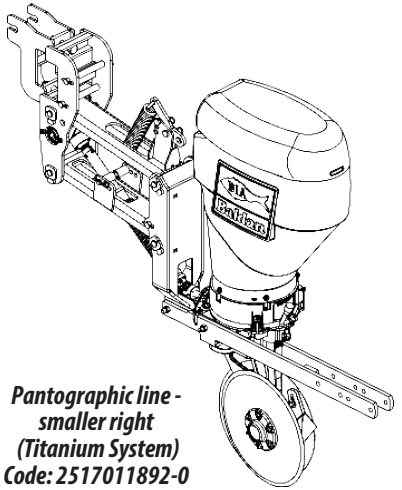
*Pantographic line -larger left for/3rd Storage Compartment (Universal Titanium) Code: 2517011875-0*



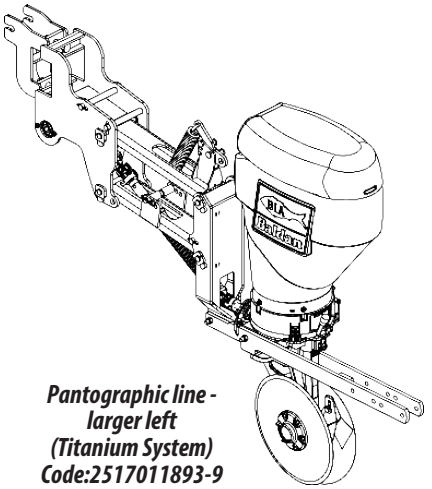
*Pantographic line - smaller right (Universal System) Code: 2517011886-6*



*Pantographic line - larger left (Universal System) Code:2517011887-4*



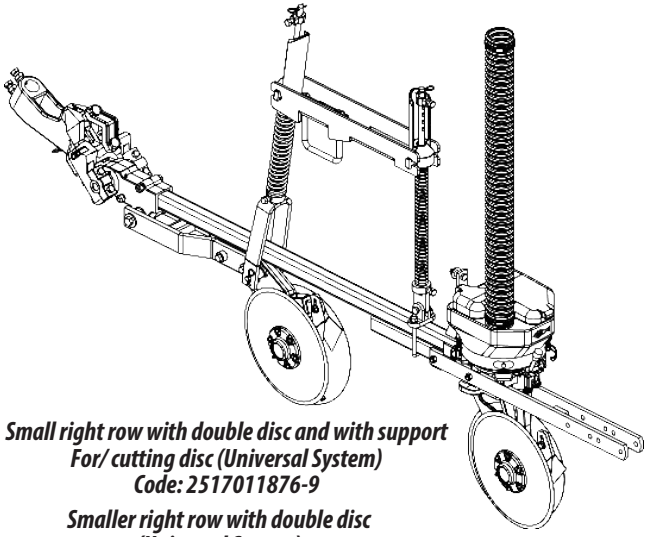
*Pantographic line - smaller right (Titanium System) Code: 2517011892-0*



*Pantographic line - larger left (Titanium System) Code:2517011893-9*

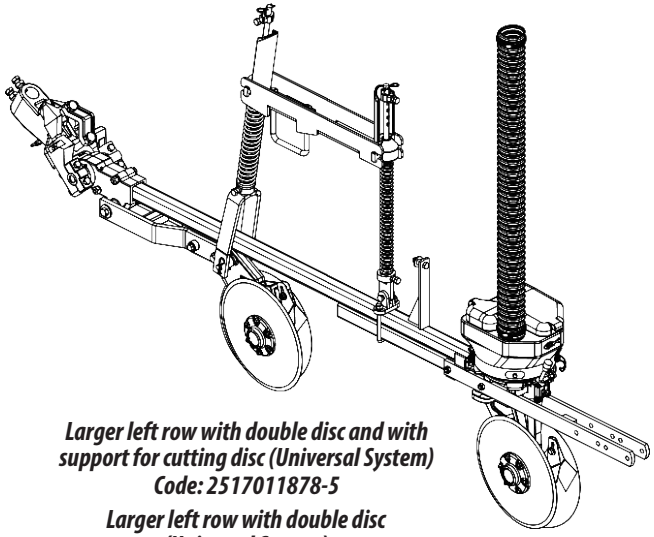
## OPTIONAL ROW MODELS - CONTINUATION (FIGURES 41)

*Figures 41*



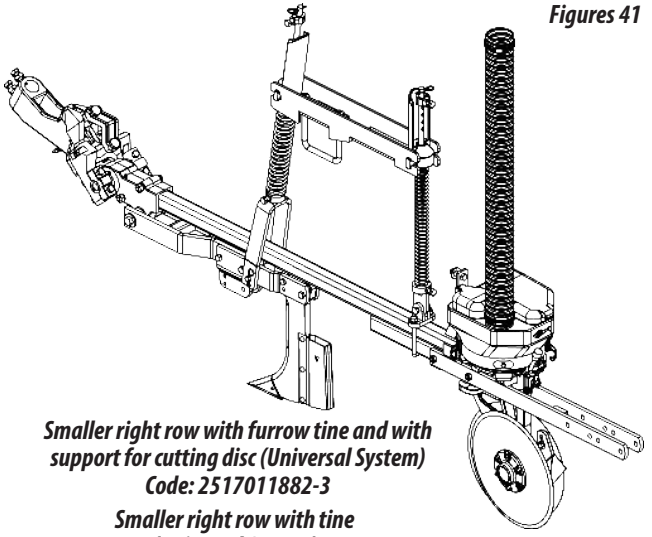
*Small right row with double disc and with support For/ cutting disc (Universal System)*
*Code: 2517011876-9*

*Smaller right row with double disc (Universal System)*
*Code: 2517011877-7*



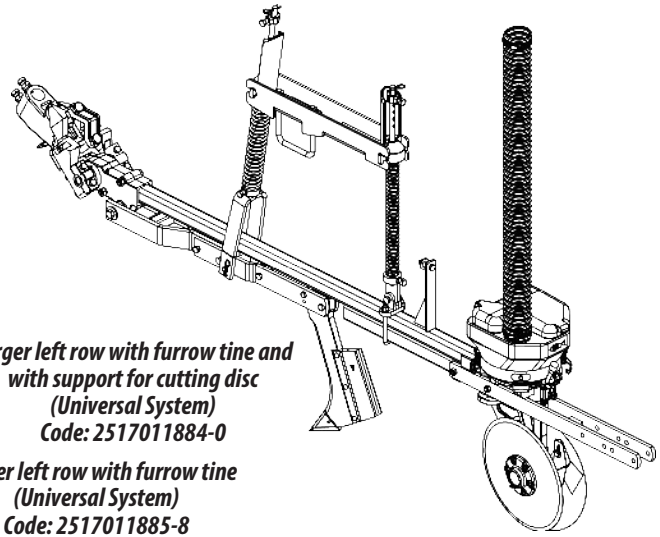
*Larger left row with double disc and with support for cutting disc (Universal System)*
*Code: 2517011878-5*

*Larger left row with double disc (Universal System)*
*Code: 2517011879-3*



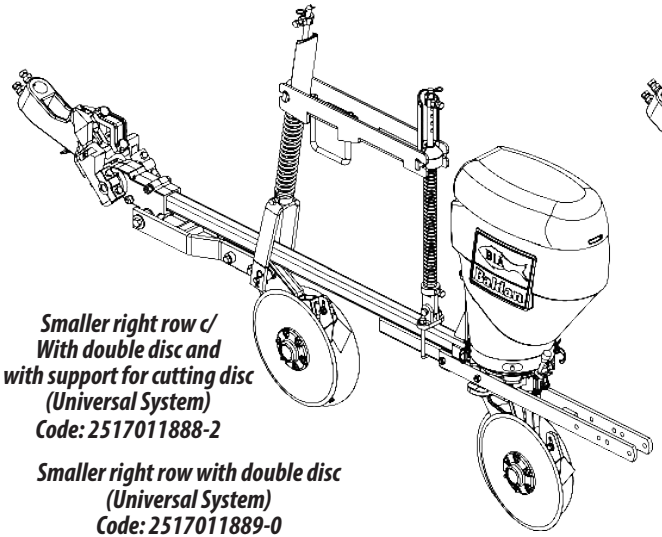
*Smaller right row with furrow tine and with support for cutting disc (Universal System)*
*Code: 2517011882-3*

*Smaller right row with tine (Universal System)*
*Code: 2517011883-1*



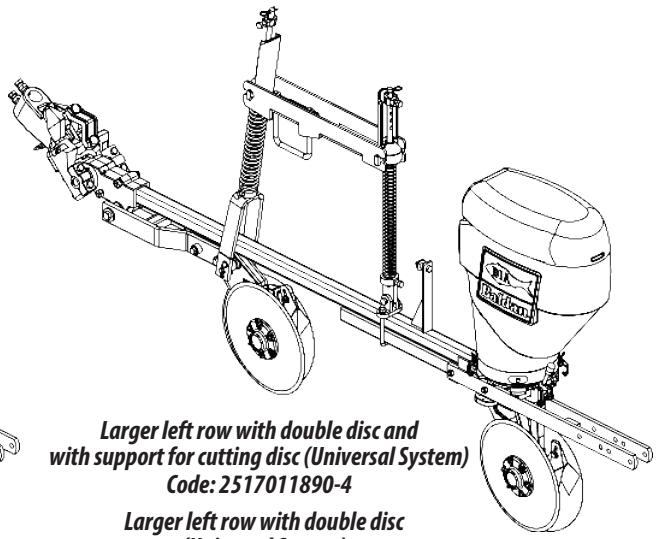
*Larger left row with furrow tine and with support for cutting disc (Universal System)*
*Code: 2517011884-0*

*Larger left row with furrow tine (Universal System)*
*Code: 2517011885-8*



*Smaller right row c/ With double disc and with support for cutting disc (Universal System)*
*Code: 2517011888-2*

*Smaller right row with double disc (Universal System)*
*Code: 2517011889-0*



*Larger left row with double disc and with support for cutting disc (Universal System)*
*Code: 2517011890-4*

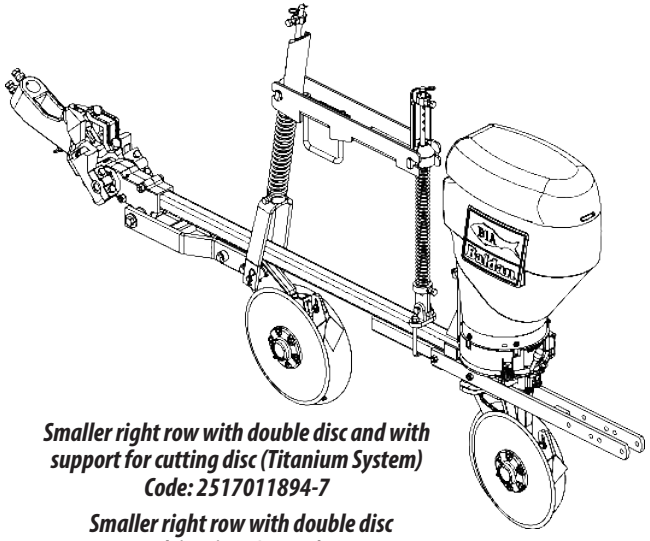
*Larger left row with double disc (Universal System)*
*Code: 2517011891-2*

# SEED ROWS

# SEED ROWS

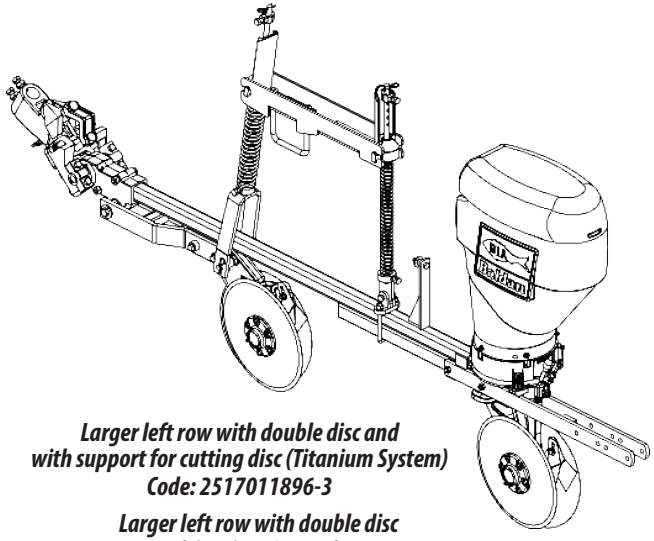
## OPTIONAL ROW MODELS - CONTINUATION (FIGURES 41)

*Figures 41*



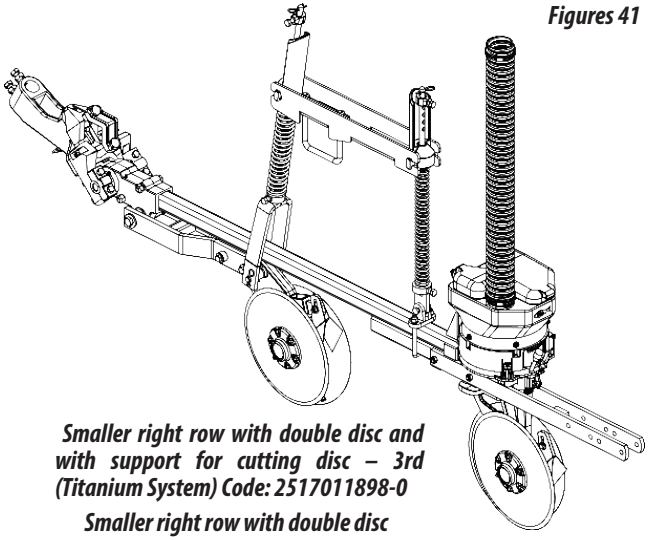
*Smaller right row with double disc and with support for cutting disc (Titanium System)*
*Code: 2517011894-7*

*Smaller right row with double disc (Titanium System)*
*Code: 2517011895-5*



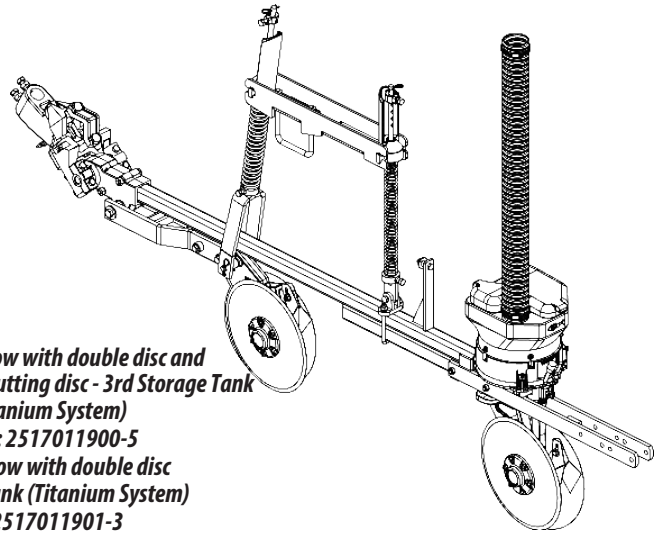
*Larger left row with double disc and with support for cutting disc (Titanium System)*
*Code: 2517011896-3*

*Larger left row with double disc (Titanium System)*
*Code: 2517011897-1*

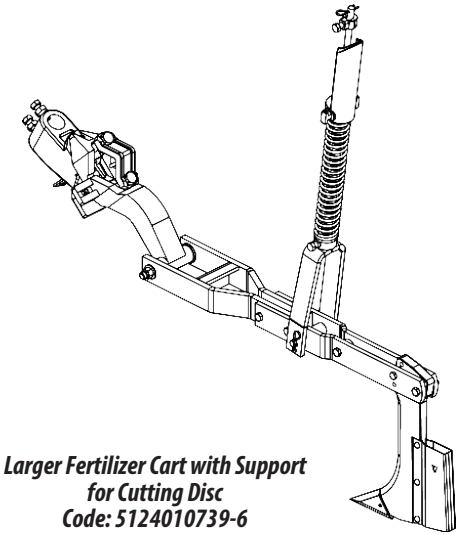


*Smaller right row with double disc and with support for cutting disc – 3rd (Titanium System) Code: 2517011898-0*

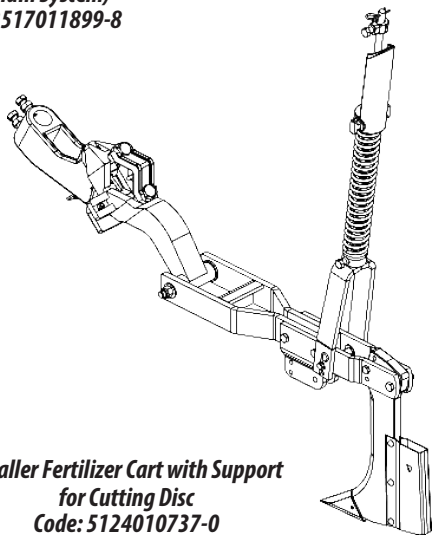
*Smaller right row with double disc - 3rd storage compartment (Titanium System)*
*Code: 2517011899-8*



*Larger left row with double disc and with support for cutting disc - 3rd Storage Tank (Titanium System)*
*Code: 2517011900-5*
*Larger left row with double disc 3rd Storage Tank (Titanium System)*
*Code: 2517011901-3*



*Larger Fertilizer Cart with Support for Cutting Disc*
*Code: 5124010739-6*



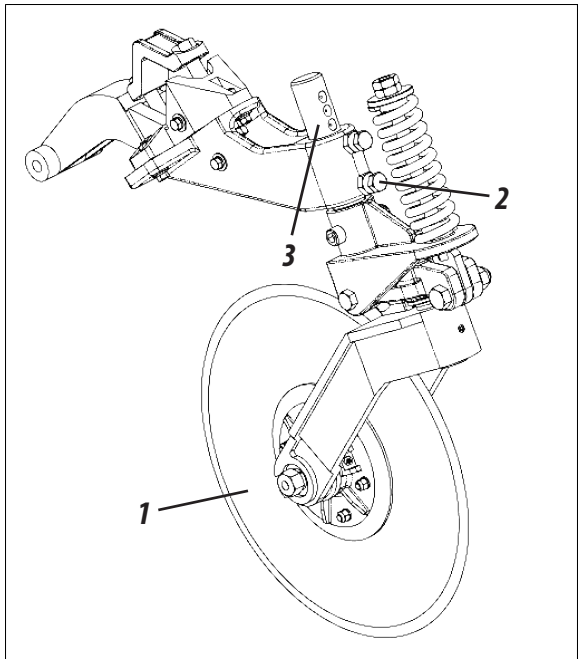
*Smaller Fertilizer Cart with Support for Cutting Disc*
*Code: 5124010737-0*

## CUTTING DISC DEPTH ADJUSTMENT (FIGURE 42)

To adjust the cutting depth (1), proceed as follows:

1- Loosen the screws (2) and move the axle (3) to the desired adjustment. Then tighten the screws again (2).

*Figure 42*



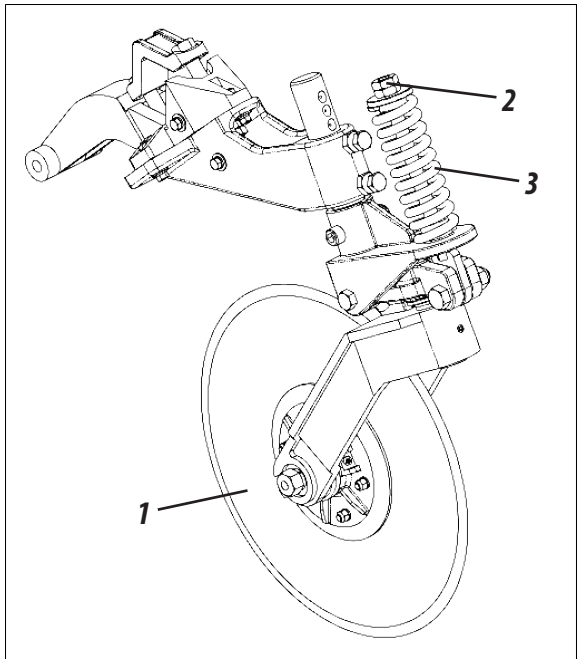

## CUTTING DISC PRESSURE ADJUSTMENT (FIGURE 43)

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

1- Turn the nut (2) in the clockwise direction for increased pressure in the spring (3).

2- Turn the nut (2) in the counter-clock direction for decreased in the spring (3).

*Figure 43*




**CAUTION** | ***After concluding the cutting disc depth and pressure adjustments, repeat these processes on all rows.***

**IMPORTANT** | ***When adjusting cutting disc pressure, be careful not to annul the articulating action of the cutting disc.***

**PRESSURE ADJUSTMENT**

| *(+) MORE SPRING PRESSURE :* | *(-) LESS SPRING PRESSURE:* |
|---|---|
| *More disc pressure for cutting the soil.* | *Less disc pressure for cutting the soil.* |

**COMMENT** | ***These cutting disc depth and depth adjustments must be performed in the field before starting to work, pay attention to the type of soil being worked, in order to obtain the best performance from the seeder.***

# ROW ADJUSTMENTS

# ROW ADJUSTMENTS

## SPRING PRESSURE ADJUSTMENT (FIGURES 44)

The row (1), is equipped with spring pressure (2) that can be adjusted for higher or lower pressure that will increase or decrease the power transferred to the double disc, (3). Then to adjust the spring pressure, proceed as follows:

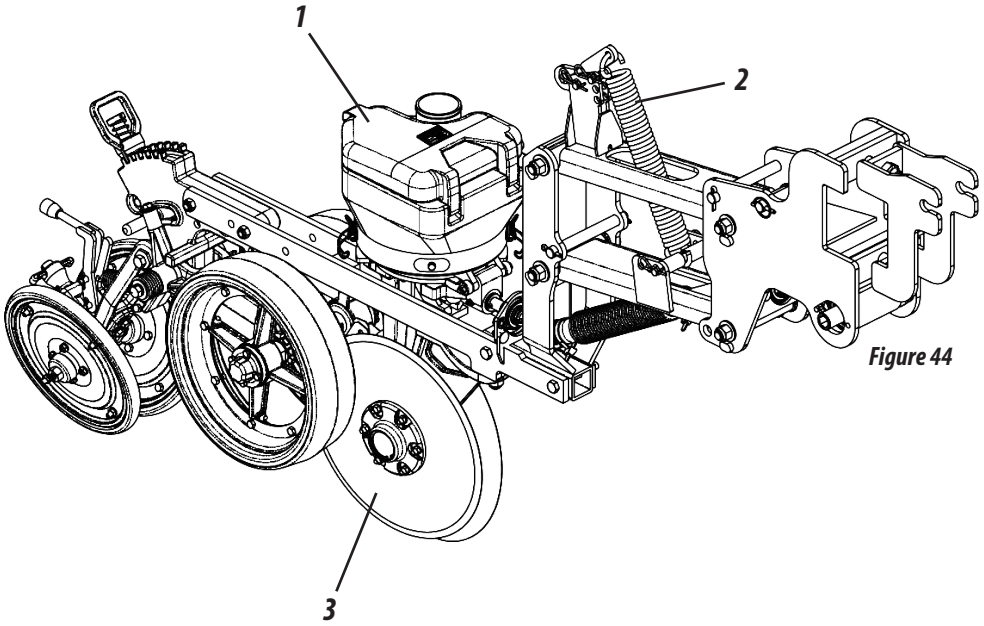



*Figure 44*

1- Use the wrench (4) found on the side of the seeder, loosening it by the ring latch (5).

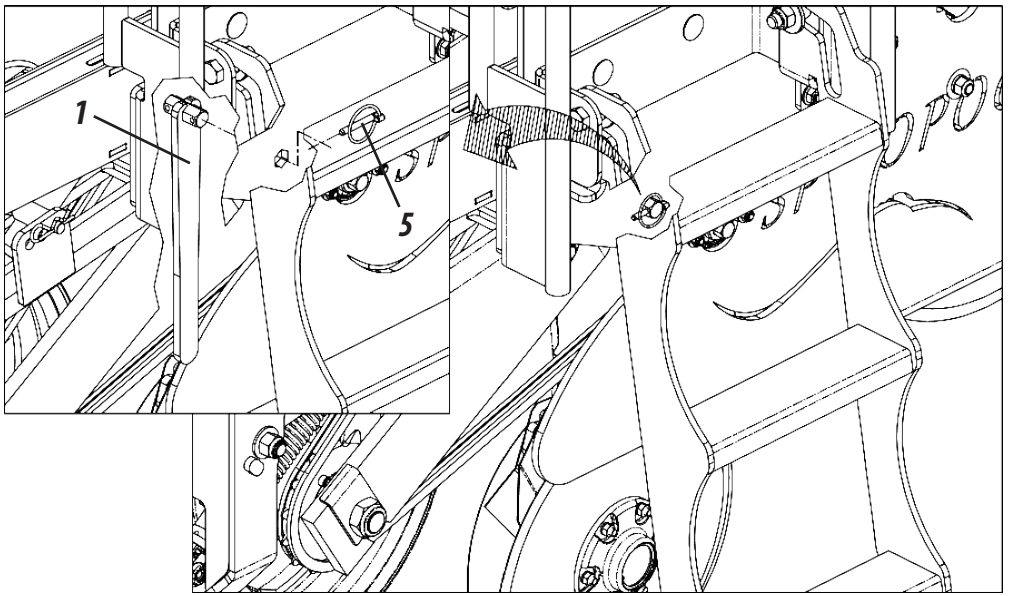
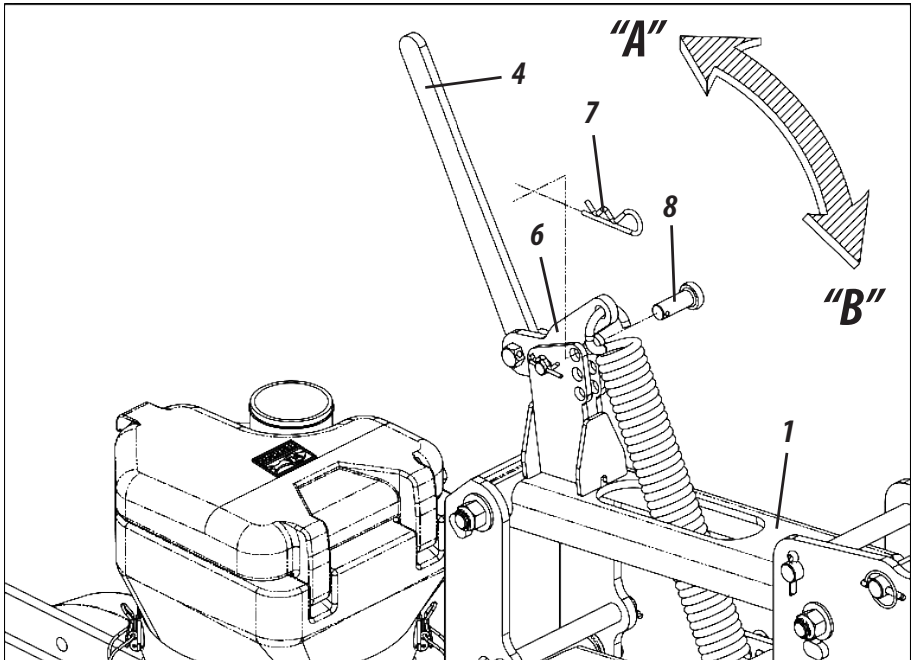



*Figure 44*

**⚠ CAUTION** | ***After concluding the spring adjustment process, repeat the procedure on all rows.***

2- Then place the wrench (4), on the lever (6) on the row (1), loosen the latch (7), remove the pin (8). After move the wrench (4) adjusting the lever (6) to the desired position.

3- Conclude by latching the lever again (6), using the pin (8) and latch (7).



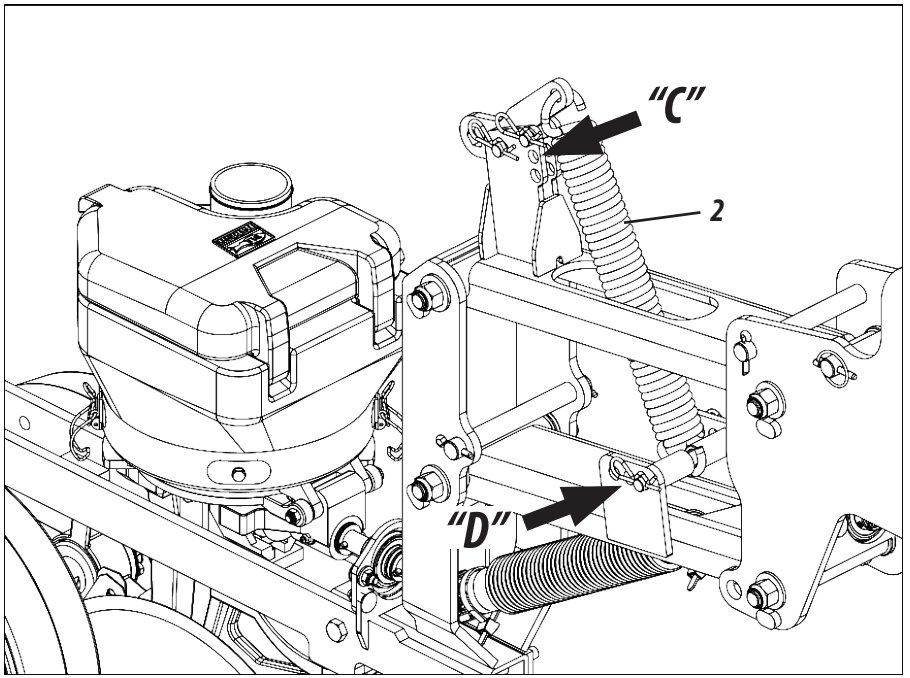

Figures 44

| | |
|---|---|
| Position "A" | More Pressure on the Spring |
| Position "B" | Less Pressure on the Spring |

## IMPORTANT

***Verify several times the operating depth on each row during the seeding process, especially in fields where the dampness varies, from one soil to others.***

When adjusting the pressure spring (2), verify which of the adjustment points "**C**" serves the adjustment needs better. If these adjustments do not achieve the desired results, then now perform a new adjustment on "**D**" adjustment points.




Figures 44

| | |
|---|---|
| Position "C" | 1st Adjustment Option |
| Position "D" | 2nd Adjustment Option |

## COMMENT

***This adjustment increases or decreases the spring pressure, it must be done in the field before starting to work, pay attention to the type of soil being worked, in order to obtain the best performance from the seeder.***

# ROW ADJUSTMENTS

# ROW ADJUSTMENTS

## DOUBLE DISC CLEANER ADJUSTMENT (FIGURE 45)

The double disc is equipped with flexible and adjustable cleaners to remove soil that adheres to the discs. Proceed as follows to adjust the cleaners:

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

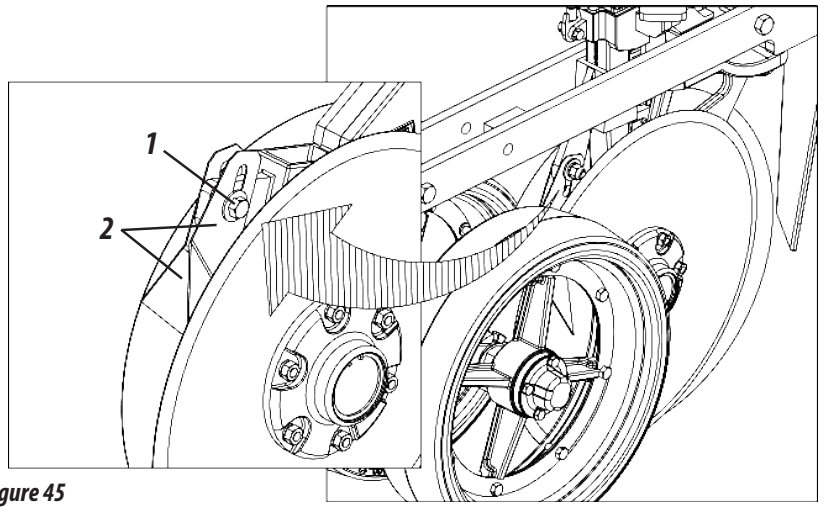



*Figure 45*

**CAUTION** | ***After concluding the adjustment of the cleaners (1), repeat this process on all rows***

## OSCILLATING WHEEL DEPTH ADJUSTMENT (FIGURE 46)

The oscillating depth limit wheels are equipped with just one support point to enable its oscillation, if there is any obstacle blocking one of its courses or irregularities on the soil that are lifting and crossing it, making it immediately return to its initial position without lifting the double disc to its proper position. The depth of the seed is performed individually by the depth limiters. Then to adjust these, proceed as follows:

1- Pull the handle (1) up, and move the adjuster (2) until the desired point to adjust the depth wheel (3), after lower the handle (1) latching the adjuster (2), **as shown in figure 46.**

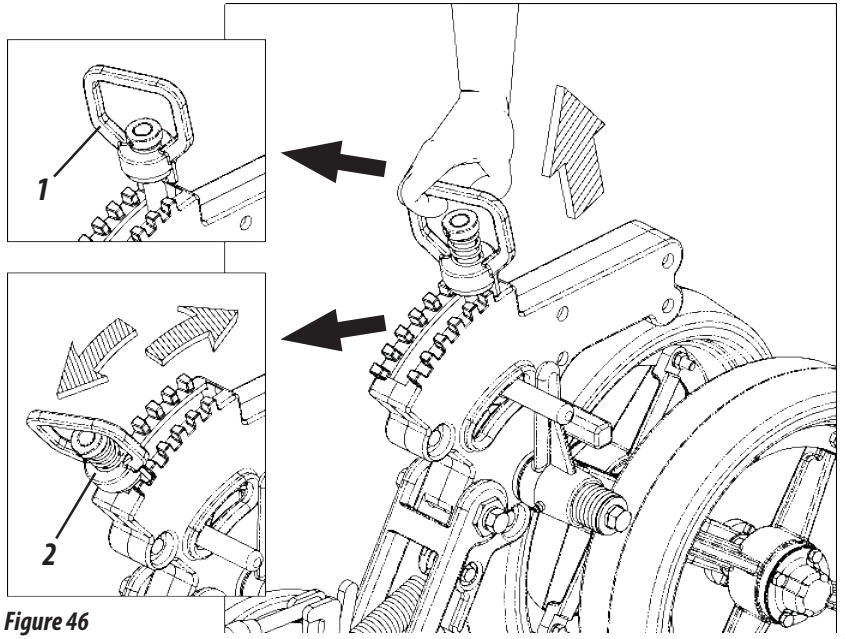



*Figure 46*

**COMMENT** | ***The oscillating cart provides 18 adjustment settings.***

## DEPTH LIMITING WHEEL (FIGURES 47/48/49)

The "V" compactor wheels (1), are used for closing the furrow laterally, placing the soil immediately over the seed, thereby avoiding excessive compaction and removing air spaces, facilitating germination and the development of the plant. To adjust an increase or decrease in the closure angle of the "V" compactor wheels (1), pull the lever (2) up to move the adjuster (3) to the desired point, after that lower the lever (2) latching the adjuster (3), as shown in **figures 47**. There are five adjustments in the "V" compactor wheels.

**Increased Pressure:** Move the lever (2) back, providing more pressure in the wheel (1).
**Decreased Pressure:** Move the lever (2) forwards, providing less pressure in the wheel (1).

- The pressure in the "V" compactor wheel (1), can also be adjusted by the lever (4). Proceed **as shown in figure 48** to perform this adjustment.

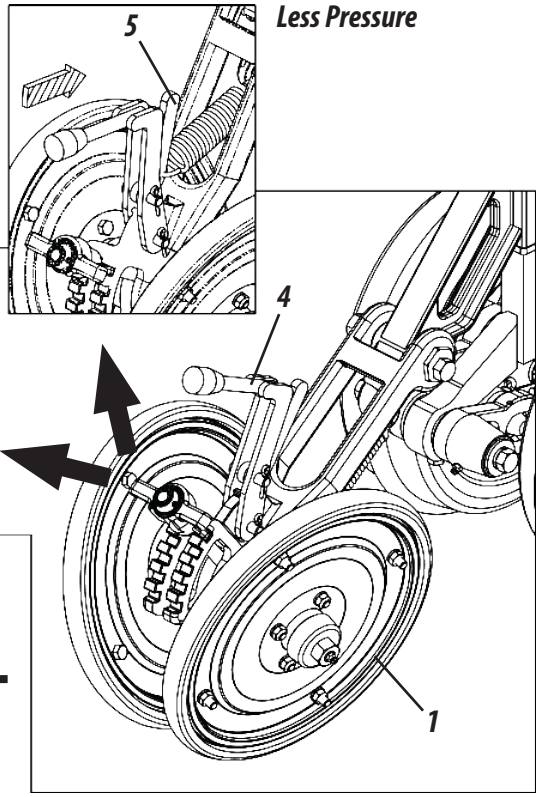


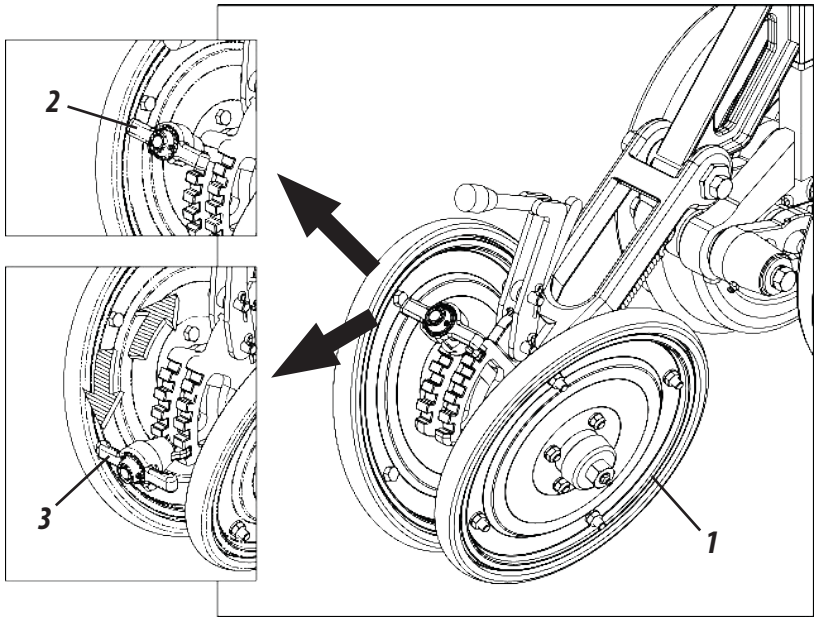

Figure 48

**More Pressure:** Move the lever (4) back, providing more pressure to the wheel (1).
**Less Pressure:** Press the lever (5) moving the lever (4), providing less pressure in the wheel (1).

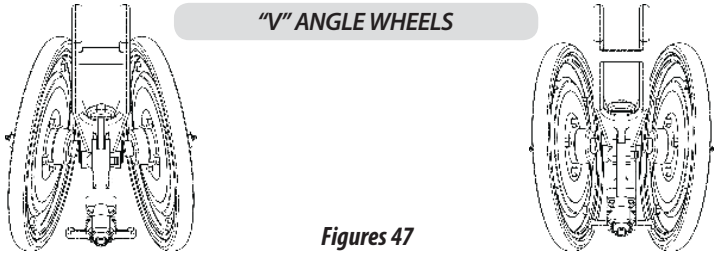
## ⚠ CAUTION

***Perform the same adjustment on all the "V" compactor wheels and considering the type of soil, seed, and seeding depth, as to not affect the free emergence of the plants.***

Figures 47




*"V" ANGLE WHEELS*



Figures 47

*Completely closed angle position (Less soil over the seed).*

*Open angle position (More soil over the seed).*

# ROW ADJUSTMENTS

# ROW ADJUSTMENTS

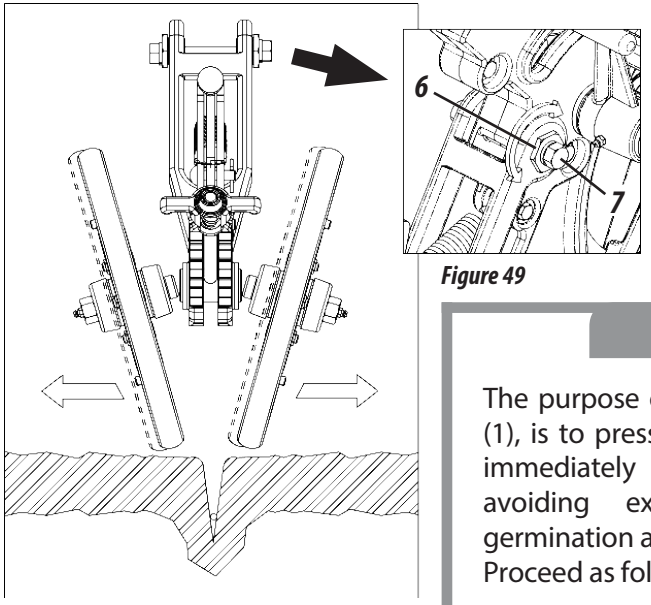



*Figure 49*

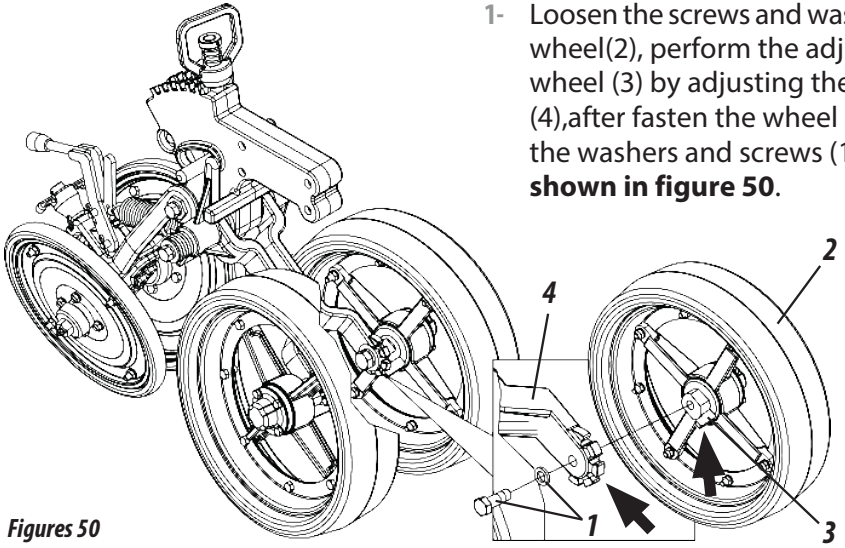
To horizontally move the wheels, they were developed with eccentric bushings (5). For this adjustment, then proceed as follows:

1- Loosen the screws (7), turn these bushings (6), using a wrench for adjusting the wheels and then aligning them to the furrow, so that a larger or smaller amount of soil is laterally placed over the seed, **as shown in figure 49.**

## OSCILLATING WHEEL DEPTH ADJUSTMENT (FIGURES 50)

The purpose of the depth limiter wheel angle (1), is to press the furrow to make the soil be immediately placed over the seed, thereby avoiding excess compaction, facilitating germination and the development of the plant. Proceed as follows to adjust the wheels:

1- Loosen the screws and washers (1), remove the wheel(2), perform the adjustment of the wheel (3) by adjusting the wheel axle (4),after fasten the wheel again (2) using the washers and screws (1), **proceed as shown in figure 50**.



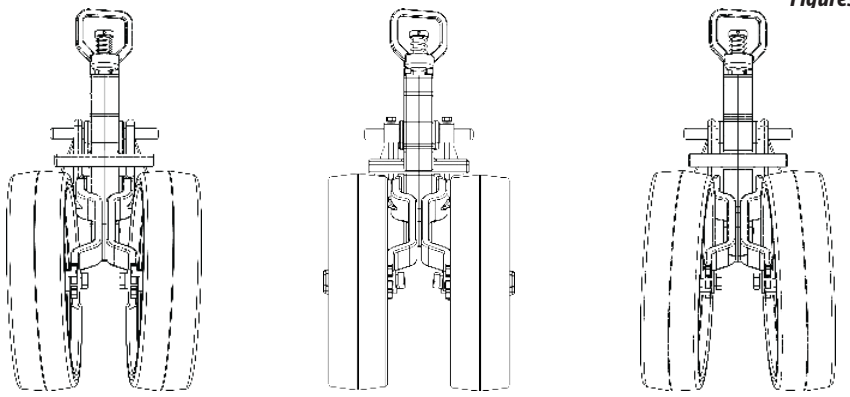

*Figures 50*

## ⚠ CAUTION

***Perform the same adjustment on all "V" compactor wheels and based on the type of soil, seed, and seed depth, as to not affect the free emergence of the plants.***

*WHEEL ANGLES*

*Figures 50*



*Completely closed wheel angle (Less soil over the seed).*

*Parallel position (Only for controlling the depth).*

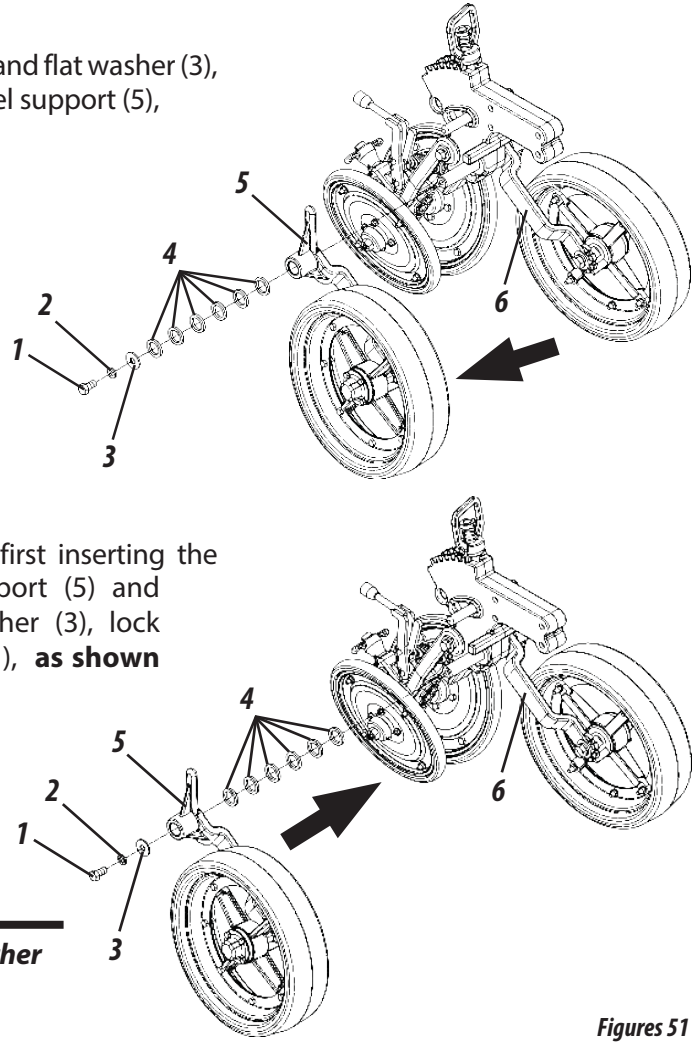
*Open angle position (More soil over the seed).*

## OSCILLATING DEPTH WHEEL OPENING ADJUSTMENT (FIGURES 51)

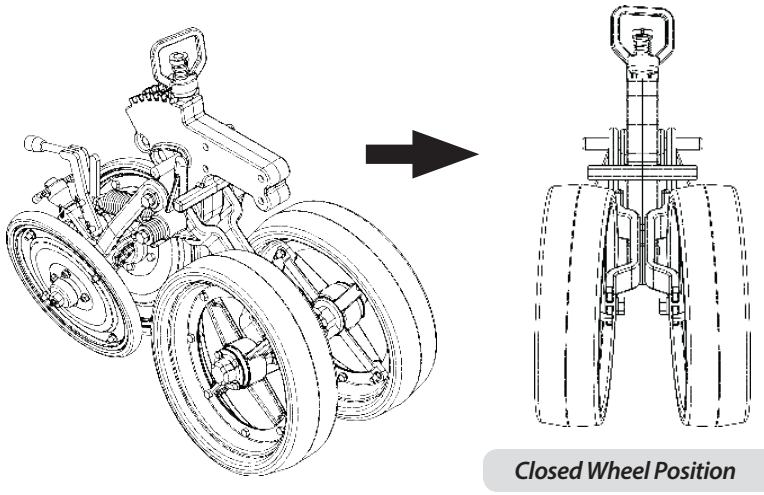
The oscillating depth wheel are equipped with an opening and closing system in order to adapt to fields based on increased or decreased denseness of residue mulch or with increased or decrease dampness. The oscillating depth wheels are shipped from the factory in the closed position. Then to open the oscillating depth wheels, proceed as follows:

1- Loosen the screw (1), lock washer (2) and flat washer (3), Remove the 6 shims (4) and the wheel support (5), **as shown in the figure next to this.**

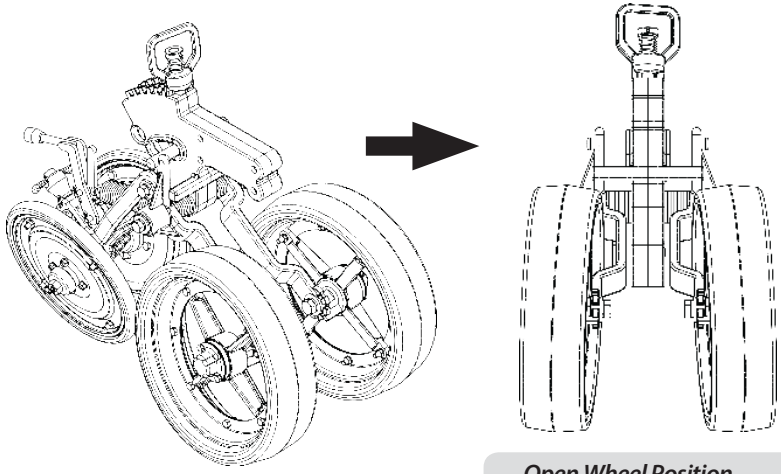
2- Then perform the reverse process, first inserting the 6 shims (4), after the wheel support (5) and conclude by placing the flat washer (3), lock washer (2) and tighten the screw (1), **as shown in the figure next to this.**




*Figures 51*



*Closed Wheel Position*



*Open Wheel Position*

**⚠ CAUTION**

***Perform the same procedure on the other 3 wheel support (6) and for all the oscillating depth wheels.***

# ROW ADJUSTMENTS

## FURROW OPENING ADJUSTMENT AND FERTILIZER PLACEMENT IN THE SOIL (PIVOTED SYSTEM) - OPTIONAL (FIGURES 52)

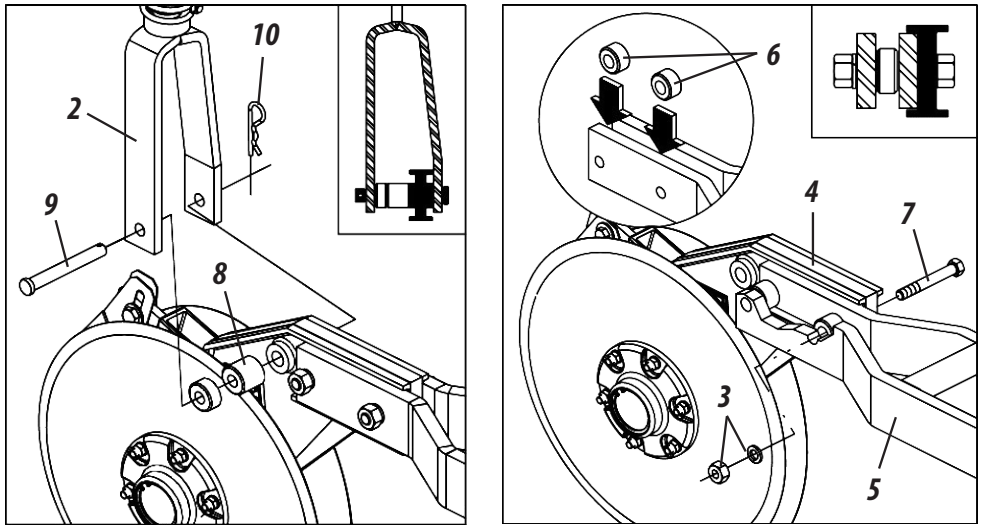
The opening of the furrows in the soil for the placement of fertilizer is done by using double discs or furrow tines in the following systems:

**- LATERAL FERTILIZING AND BELOW THE SEED.**
**- FERTILIZING IN THE SAME ROW AND BELOW THE SEED.**

Proceed as follows to adjust the row distance of fertilizer as related to the seed row:

1- Remove the spring rod (2), loosen the nuts and washers (3), remove the housing (4) between the fork plates (5), insert the same on one of the sides of the referred fork, place the bushings (6) between the fork plates and fasten the screws (7), washers and nuts (3).

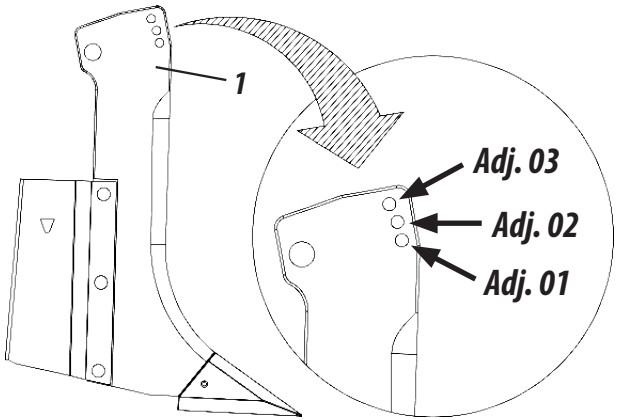
2- Then, replace the spring rod (2), placing the bushings (8) on the same side as the housing are moved, fastening the pin (9) and the latch (10).




*Figures 52*

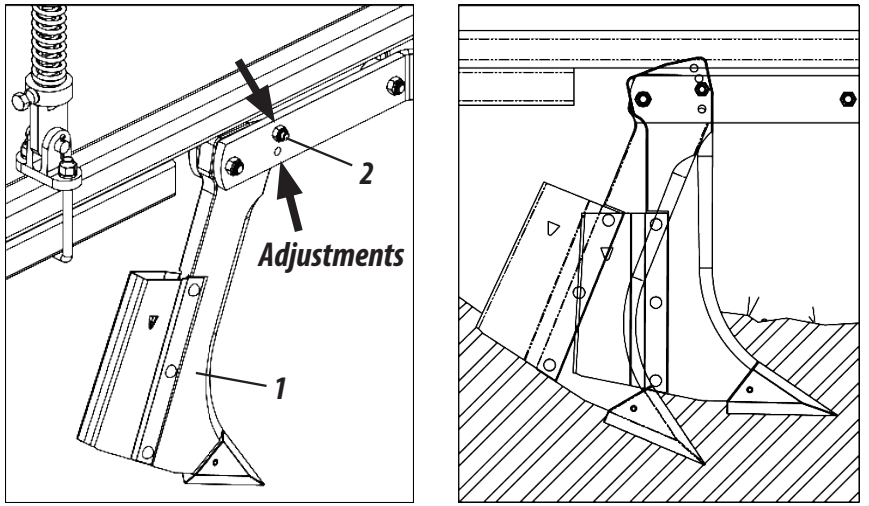
## FURROW ATTACK ANGLE ADJUSTMENT (PIVOTED SYSTEM) - OPTIONAL (FIGURES 53)

There are 3 options for adjusting the attack angle of the furrow tines (1).




Proceed as following to adjust the attach angle of the furrow tines:

1- Remove the screw (2), articulate the furrow tine (1) to the ideal adjustment and replace the screw (2).




*Figures 53*

## FERTILIZER DEPTH AND PRESURE IN THE SEED ROWS (PIVOTED SYSTEM) - OPTIONAL (FIGURE 54)

The depth adjustment of the fertilizer is done by adjusting the spring pressure exerted on the seed rows. That adjustment is done using bushings. Proceed as follows to adjust the spring pressure:

**INCREASING DEPTH.**

1- Loosen the screw (1) and move the bushing (2) up.

**DECREASING DEPTH.**

2- Loosen the screw (1) and move the bushing (2) down.

**INCREASING PRESSURE.**

3- Loosen the screw (3) and move the bushing (4), up.

**CAUTION**

***Perform the same procedure above but now in the rod to adjust the seed row pressure (6).***

**IMPORTANT**

***Repeat this procedure on all the rows when the adjustment is concluded in order to avoid variation among the rows.***

**COMMENT**

***Always leave a space between the bushing (2) and the rod support (5) for row oscillation.***

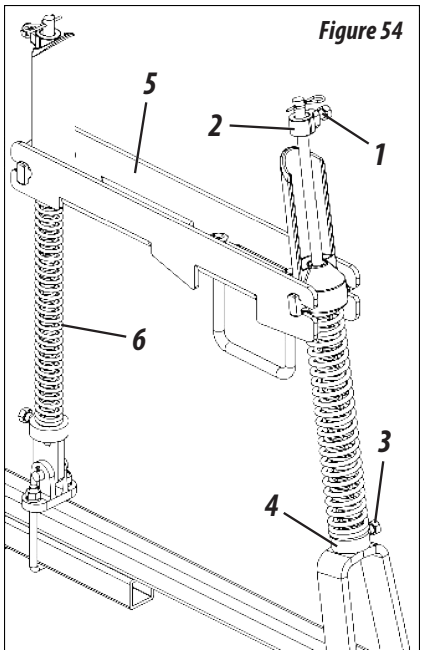


*Figure 54*

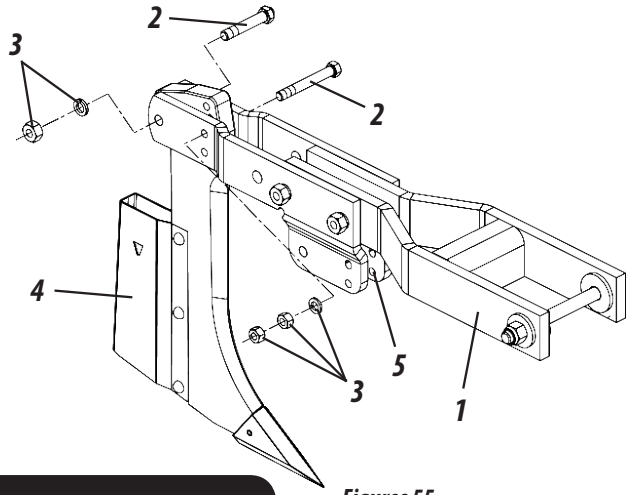
## ADJUSTING THE FURROW TINE FOR INCREASED OR DECREASED MISMATCHING (PIVOTED SYSTEM) - OPTIONAL (FIGURES 55)

The **SP Topografic** seeder can be purchased with a pivoted row and a mismatching furrow tine system (1). This furrow tine is used in cases when the mulch cover is very dense, thereby increasing the mismatching of the furrow tines, providing increased flow. So, to adjust the furrow tine, proceed as follows:

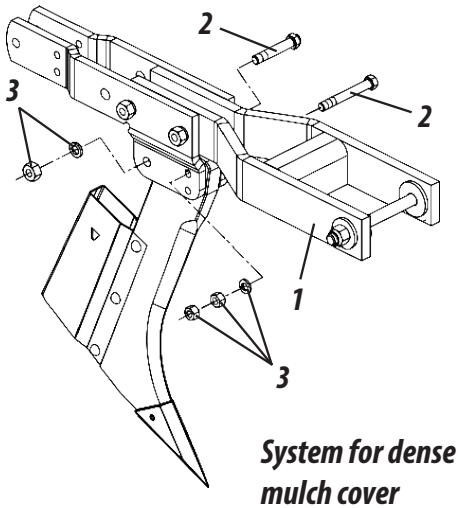
1- Loosen the screws (2), lock washers and nuts (3).

2- Then remove the furrow tine (4) and place it in front of the support (5).

3- After, fasten it again using the screws (2), lock washers, and nuts (3).



*Figures 55*



***System for dense mulch cover***

# OPERATING

## OPERATING RECOMMENDATIONS

01 - After the first day operating the seeder, retighten all the screws and nuts. Verify the condition of the pins and latches.
02 - Do not maneuver or go in reverse when the seed rows are lowered and in contact with the soil.
03 - Abide by the lubrication change intervals.
04 - When loading the storage compartments verify if there are no objects inside of them, such as nuts, screws, etc. Use seeds that are free of impurities.

05 - Always observe the operation of the seed spreaders and also the required adjustments at the beginning of the seeding process.
06 - Keep the seeder always leveled, the tractor traction bar must remain fastened and the operating speed must remain constant.

07 - Always verify the seed depth and the compactor wheel pressure.
08 - Observe the position of the fertilizer as related to the seeds in the soil.
09 - Whenever performing any verification or maintenance on the seeder, it must be lowered until the ground and the tractor motor must be turned off.
10 - Do not make sharp turns with the seeder while operating it, especially in direct contact while seeding. The seeding row components can be damaged.
11 - Do not activate the hydraulic cylinders partially. Always activate them completely when raising and lowering the seeder.

12 - The seeder is equipped with several adjustments, as only the local conditions can define the optimal adjustment for each condition.
13 - Only load the seeder in the location where it will be operated.
14 - Do not transport or work with excessive load in the seeder.
15 - The instructions for the right side and the left side are based on looking from behind the seeder.
16 - The **SP Topografic** seeder operates most efficiently at a speed range from 5 to 7 km/h.
17 - In cases of any doubts/questions, never operate or handle the seeder, consult with the After-Sales Department.
18 - Telephone: 0800-152577 or e-mail: posvenda@baldan.com.br

## TIRE PRESSURE (FIGURE 56)

1- The tires must be filled correctly in order to avoid premature wear due to excess or low por excesso ou falta de pressão e assegurando precisão na distribuição.

2- The tire pressure in the **SP Topografic** must be **70 lb/pol²** in each tire.

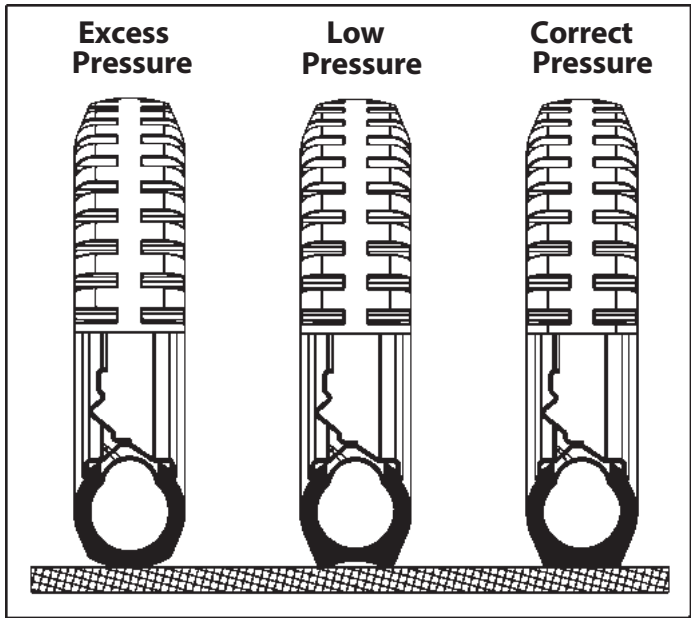



*Figure 56*

**⚠ CAUTION**

***When filling the tires on the seeder, do not exceed the recommended pressure. Always keep all the tires at the same pressure in order to avoid wear and maintain uniformity in the seeding.***

## LUBRICATION

3- - Lubrication is essential for good performance and good durability of the moving parts in the **SP Topografic**, contributing to maintenance cost savings.

4- Before starting to operate it, carefully lubricate all the grease fittings always abiding by the lubrication intervals on the following pages. Certify the quality of the lubricant, regarding its efficiency and purity, avoiding contaminated products, water, dirt, and other agents.

## GREASE AND EQUIVALENT TABLE (TABLE 13)

| *MANUFACTURER* | *RECOMMENDED TYPES OF GREASE* |
|---|---|
| Petrobrás | Lubrax GMA 2 |
| Atlantic | Litholine MP 2 |
| Ipiranga | Super Graxa Ipiranga<br>Ipíranga Super Graxa 2<br>Ipiflex 2 |
| Castrol | LM 2 |
| Mobil | Mobilgrease MP 77 |
| Texaco | Marfak 2<br>Agrotex 2 |
| Shell | Retinax A<br>Alvania EP 2 |
| Esso | Multipurpose grease H |
| Bardahl | Maxlub APG 2 EP |

*Table 13*

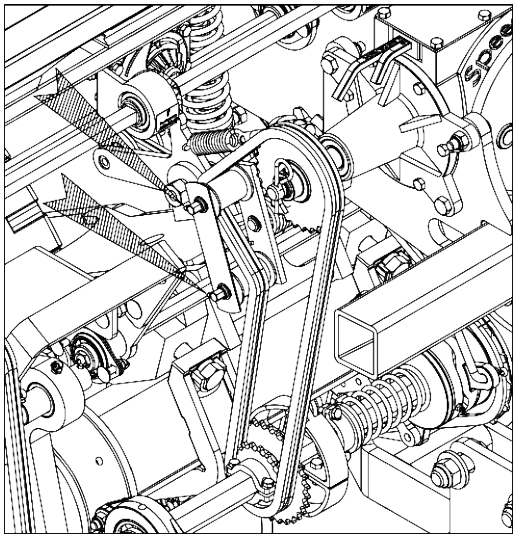
**IMPORTANT**

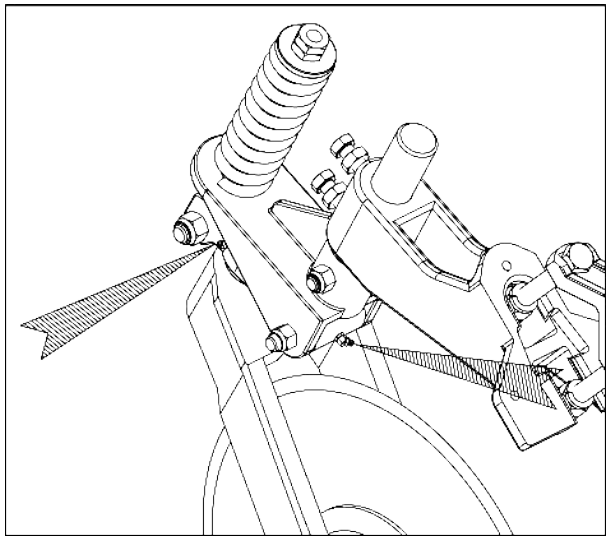
***If there are other lubricants and/or brands equivalent to those listed on this table, consult the technical manual of the lubricant of the manufacturer.***

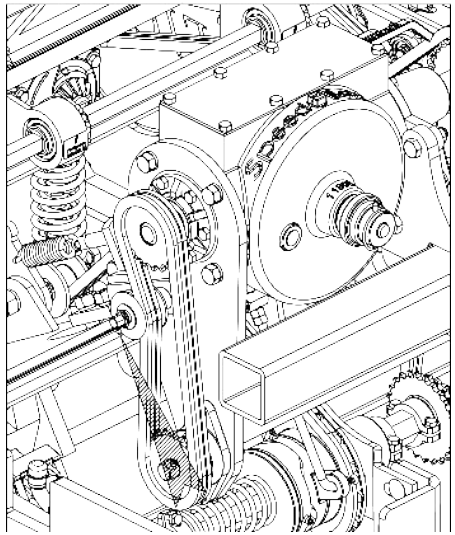
# MAINTENANCE

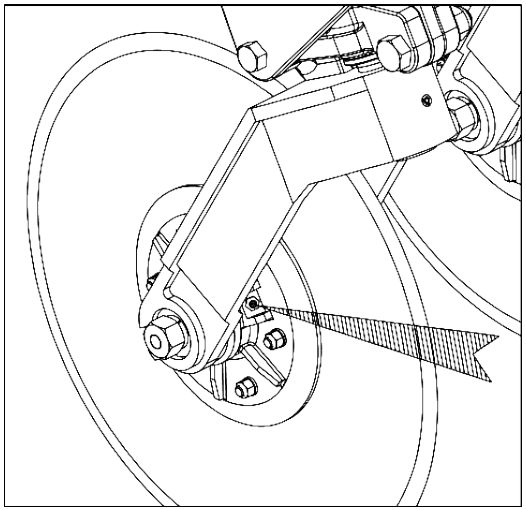
# MAINTENANCE

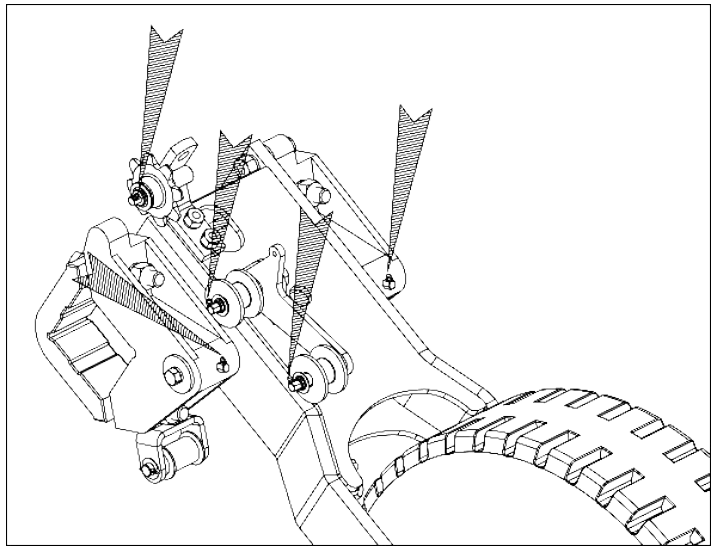
## LUBRICATE AFTER EVERY 10 HOURS OF OPERATION (FIGURES 57)









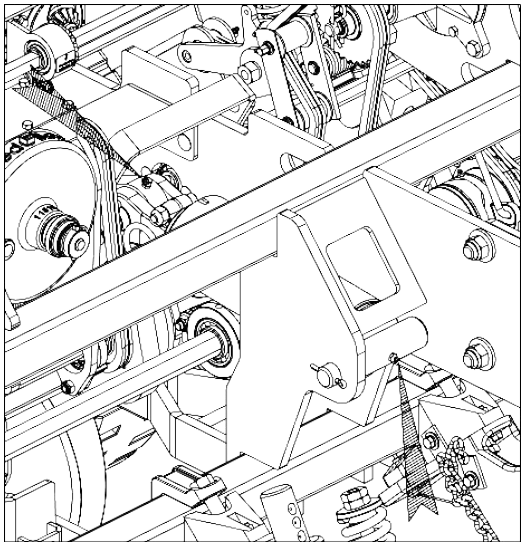


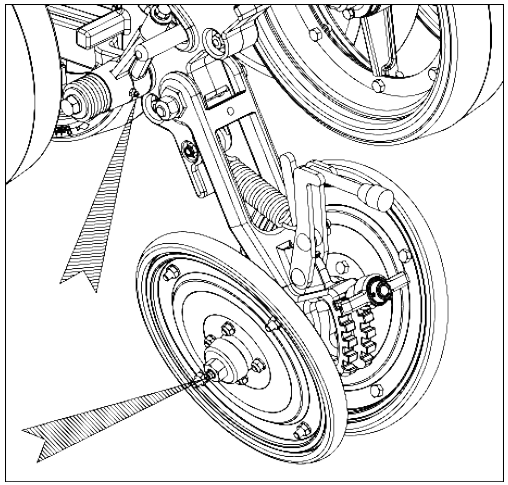
**⚠ CAUTION**

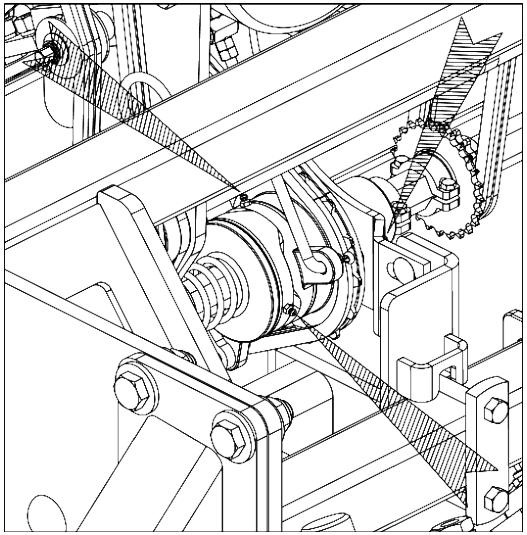
***Do not apply excessive grease and abide by the recommended lubrication intervals.***

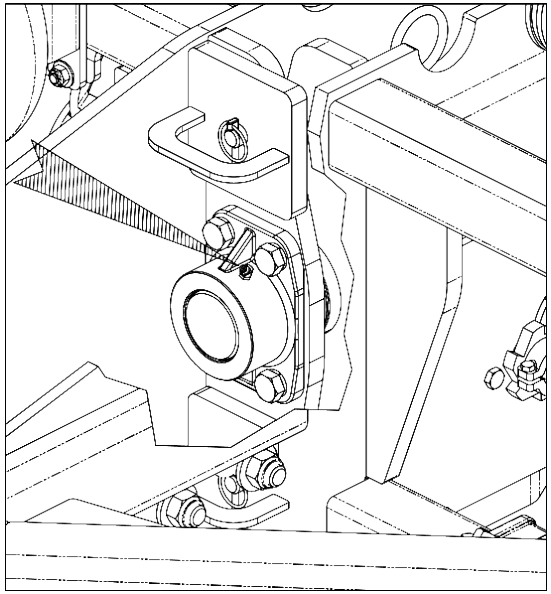
*Figures 57*

## LUBRICATE AFTER EVERY 10 HOURS OF OPERATION - CONTINUATION (FIGURES 57)



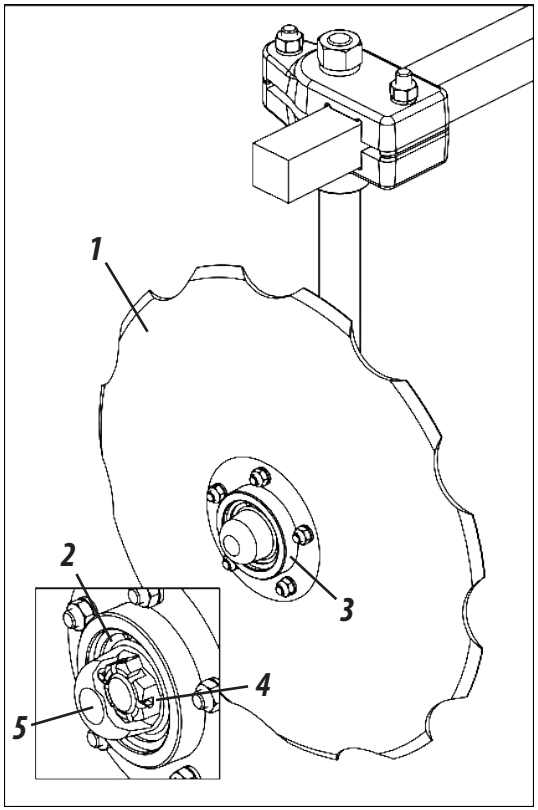






Proceed as follows to lubricate the row marker (1) hub):

1- Remove the retention ring (2) from the hub (3). Examine bearings, if there is any play; adjust that by tightening the castle nut (4). Insert new grease in the hubcap (5). Replace the hubcap (5) on the hub and fasten it using the retention ring (2).

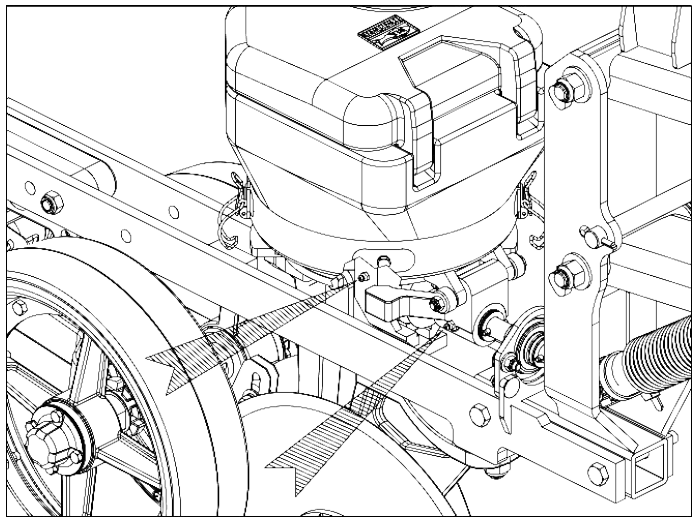



*Figures 57*

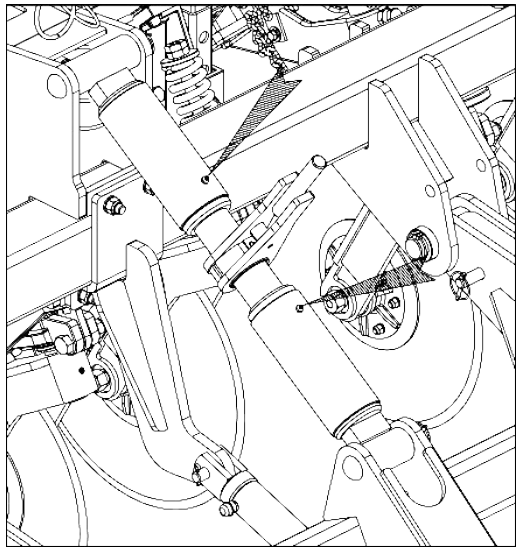
**CAUTION** | ***Do not apply excessive grease and abide by the recommended lubrication intervals.***

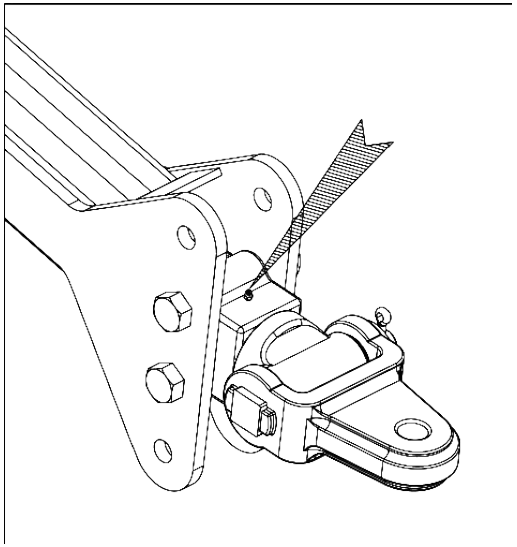
# MAINTENANCE

## LUBRICATE AFTER EVERY 30 HOURS OF OPERATION (FIGURES 58)



*Figures 58*





## LUBRICATE AFTER EVERY 60 HOURS OF OPERATION (FIGURE 59)

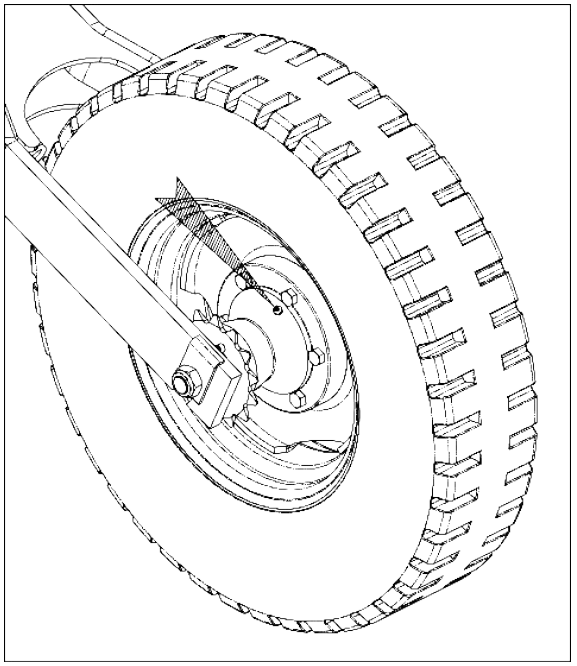


*Figure 59*

## LUBRICATE EVERY 200 HOURS OF OPERATION (FIGURE 60)

Periodically lubricate the compacter wheels (1) approximately every 200 hours of operation and at the end of the harvest, so to do this, proceed as follows:

1- In the compactor wheels (1) loosen the screws and washers (2), remove the hubcap (3) and insert new grease. Replace the hubcap (3) on the compactor wheels (1) and fasten them using screws and washers (2), **as shown in figure 60.**

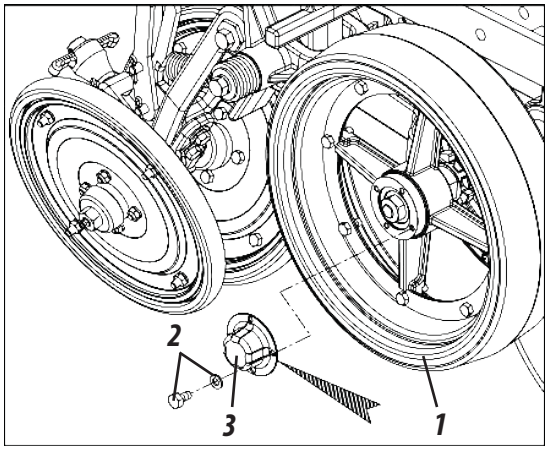



*Figure 60*

## CHAIN STRETCHER (FIGURE 61)

Proceed as follows for the chain stretcher:

1- Loosen the nut (1), slide the stretcher (2) adjust the chain tightness (3). Then retighten the nut (1), **as shown in figure 61.**

**⚠ CAUTION**

***Verify the tightness of the chain daily, the normal play must be + - 1cm in the center of the chain.***

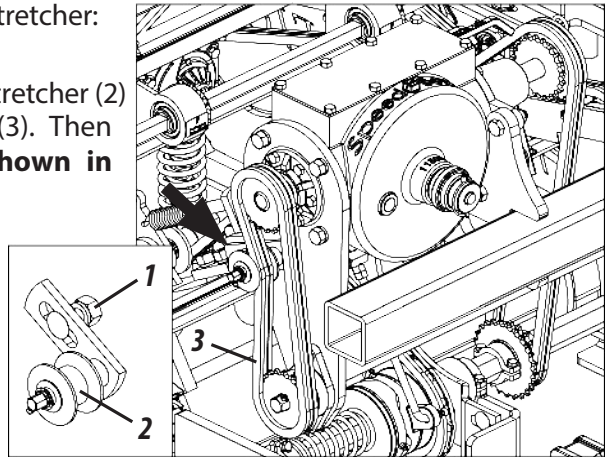



*Figure 61*

## OSCILLATING STRETCHER (FIGURE 62)

The stretcher (1) is equipped with a tightening spring (2) for increased flexibility. If more pressure is necessary in the chain stretcher, loosen its internal nut (3) turn the axle (4) passing the spring coupler (2) to reach another tooth of the rosette of the axle and then retighten the internal nut again (3), **as shown in figure 62.**

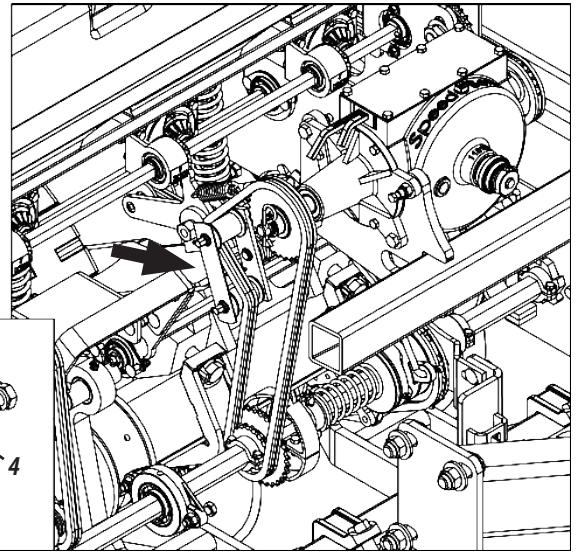
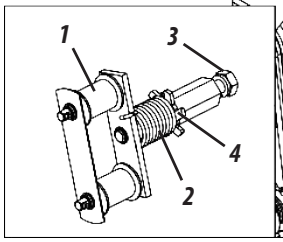


*Figure 62*



# MAINTENANCE

## OPERATING MAINTENANCE

| *PROBLEMS* | *PROBABLE CAUSES* | *SOLUTIONS* |
|---|---|---|
| One seed row is not as deep as the others. | Adjust the pressure on the depth limiter wheels or the row springs | Adjust all the depth wheels and the row spring pressure to be the same. |
| The furrow is opening too much during the seeding process. | The soil is sticky and sticks to the discs or the operating speed is too fast. | Decrease the operating speed. |
| There is a strange noise when operating or moving when the seeder is loaded. | The wheels are loose or there is play in the wheel hub. | Retighten the wheel nuts. Adjust the bearing in the wheel hub. |
| The seeder leaves the seed row, on one side or the other side in the width. | The coupling bar of the tractor is loose. | Use the pin supplied with the seeder. Fasten the tractor coupler bar in the center hole. |
| It is not covering the furrow. | The compactor wheels are badly adjusted or the ground is damp. | Adjust the compactor wheel, moving it sideways related to the furrow. |
| The hydraulic cylinders stopped operating, it lifts the seeder and then it does not lower it or vice-versa | Use a different quick coupler, a round male type and female type coupler, or vice-versa. | Proceed in changing the quick coupler, installing two of the same type. |
| Broken seeds. | Fast seeding speed. | Decrease the operating speed. |
| | Improper disc thickness. | Use a proper disc (thickness and hole diameter). |
| | Disc badly installed.<br>The seed strainer is not appropriate for the disc being used. | Install the disc properly **(Observe the sentence: THIS SIDE DOWN).** |
| | Using damp seeds. | Use dry seeds. |

## PRECAUTIONS

1 - Verify the status of all pins and screws before starting to operate the seeder.

2 - The moving speed must be carefully controlled based on the conditions of the terrain.

3 - Baldan seeders are used for various applications, then knowledge and attention is required while handling the equipment.

4 - Only the local conditions can define the best manner for operating the seeder.

5 - Whenever assembling or disassembling any part of the seeder, employ appropriate methods and tools.

6 - Carefully pay attention to the lubrication intervals, for different parts of the seeder.

7 - Always check for worn out parts. If any parts needs to be replaced, **always demand original Baldan parts.**

## OVERALL CLEANING

1- Whenever storing the seeder, perform overall cleaning and wash only with water. Verify if any paint is worn, if this happens, apply a coat of paint and protective oil lubricate the seeder. Do not use burnt oil and/or diesel oil for this purpose.

2- After finishing the seeding process, proceed as follows:

- Remove the power transmission chains and keep them bathed in oil until the next crop

- Remove all conductor hoses from the seeder, washing them immediately using only water and mild soap. Do not use chemical products.

3- Completely lubricate the seeder. Check the moving parts and if there is any worn parts or play, make the necessary adjustments or replace the worn parts, making contact with the ground.

4- After performing all the maintenance procedures, store the seeder in a covered and dry location, properly supported. Avoid letting the discs come into direct com o solo.

5- Whenever connecting or disconnecting the hydraulic hoses to/from the seeder, clean the connections using a dry and clean cloth, absent from any lint **(do not use rags).**

6- Replace any labels, especially warnings that are damaged or missing. Make everyone aware of the importance of them and the dangers of accidents if the instructions are not followed.

7- We recommend washing the seeder only with water at the beginning of a new crop seeding season.

**⚠ CAUTION**

***Do not use chemical products for washing the seeder, as those can damage the paint and the labels.***

# MAINTENANCE

# MAINTENANCE

## TITANIUM DISPENSER - OPTIONAL (FIGURE 63)

The **SP GIGA D** seeder can be purchased as an option with the **TITANIUM** seeder dispenser. See the components that are part of the **TITANIUM** below.

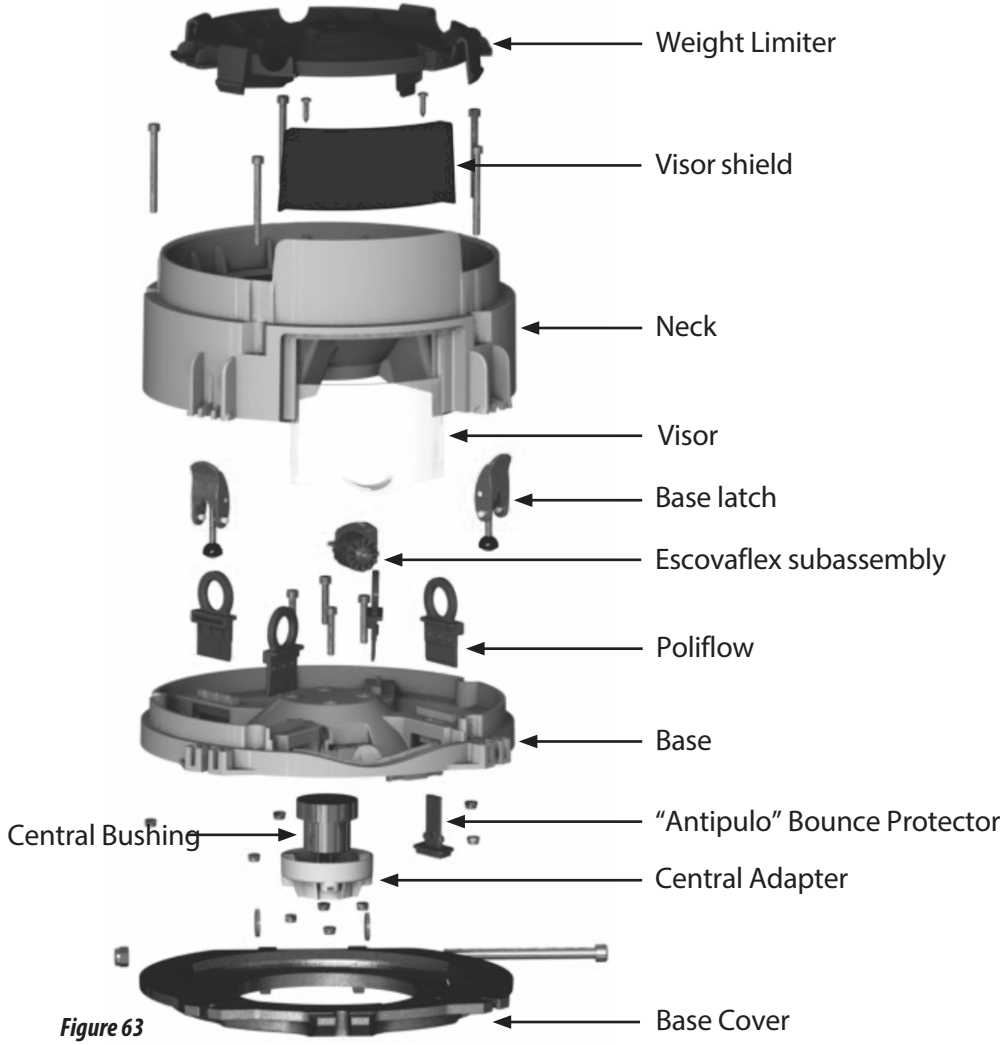


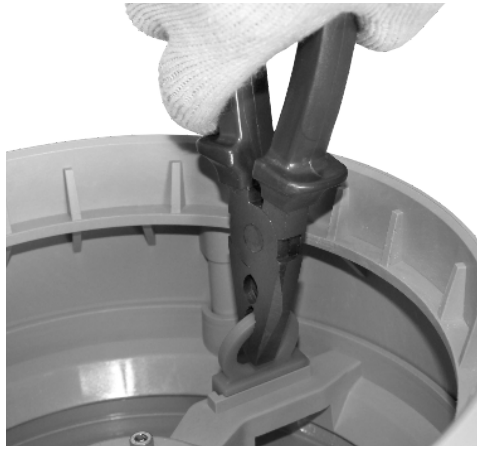

*Figure 63*

## CHANGING THE POLIFLOWS IN THE TITANIUM DISPENSER - OPTIONAL (FIGURES 64)

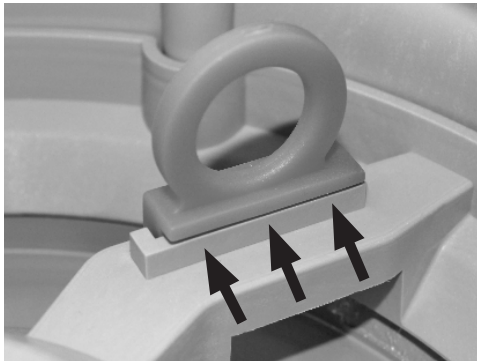
The change can be done manually or using a universal set of pliers.

**1st Step**: Remove the weight limiter. Pull the **POLIFLOW** with your fingers or a set of pliers.

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



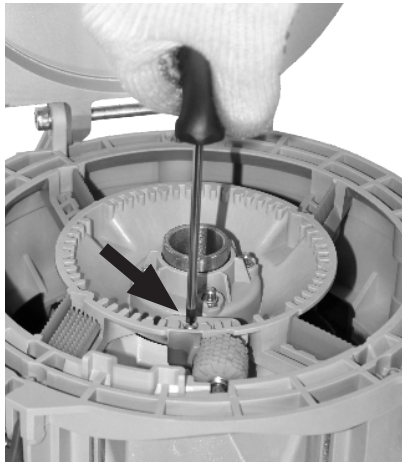
**3rd Step**: Insert it until the two edges meet.

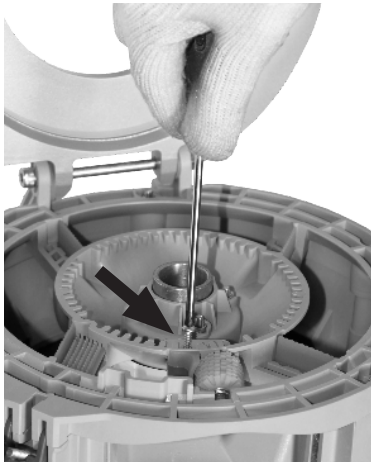


*Figures 64*

## CHANGING THE ESCOVAFLEX IN THE TITANIUM DISPENSER - OPTIONAL (FIGURES 65)

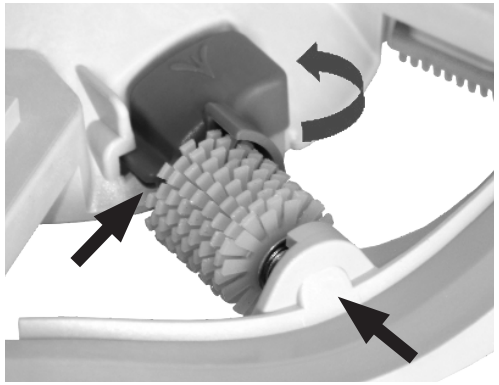
**Use a # 02 Phillip's Head screwdriver to change this.**
Unlatch and open the base cover. Then remove the screw.



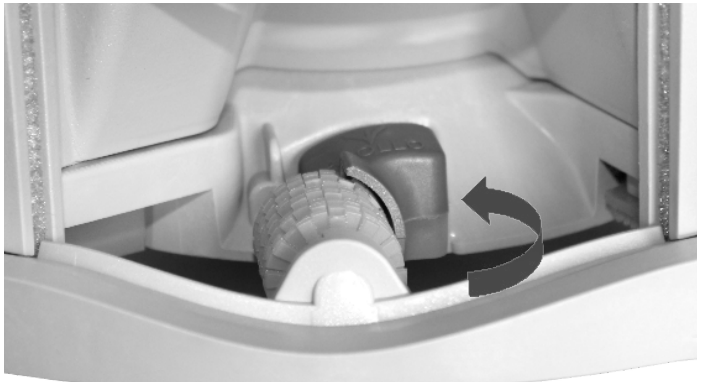


Turn the **ESCOVAFLEX** in the counter-clockwise direction and lift the rear part diagonally.

*Figures 65*



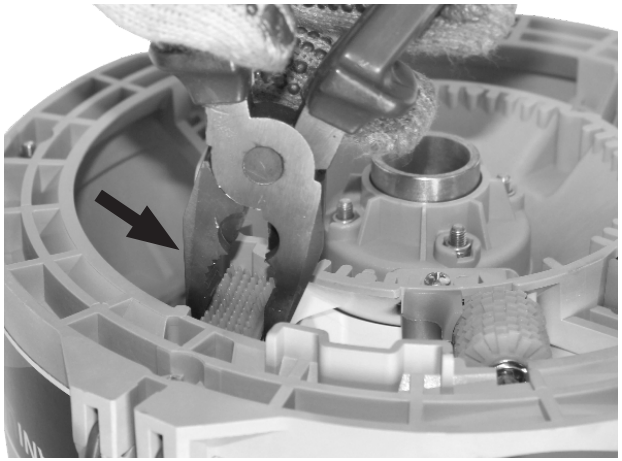
**Comment:** The side support must fit in the base.



**ESCOVAFLEX** also fits in the base, however when replacing a used one for a new, make sure it is properly fitin.

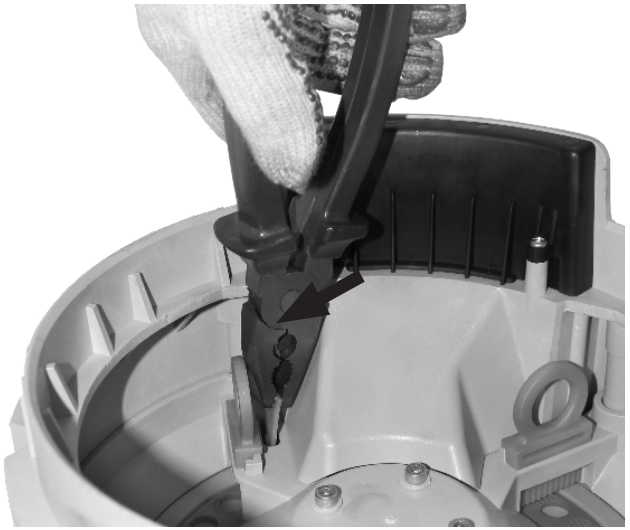
## CHANGING THE BOUNCE PROTECTOR IN THE TITANIUM DISPENSER - OPTIONAL (FIGURES 66)

Use a universal set of pliers to remove the **BOUNCE PROTECTOR**.



*Figures 66*

Insert the **BOUNCE PROTECTOR** using a set of pliers inside the box and pull until it fits in the base.

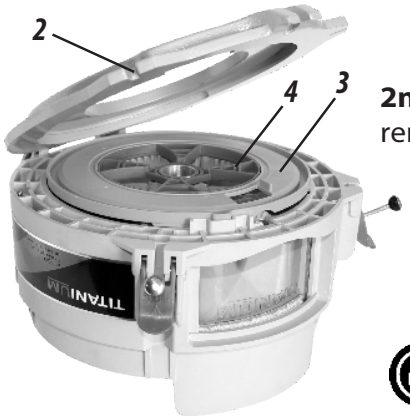


# MAINTENANCE

## CHANGING THE DISCS AND RINGS IN THE TITANIUM DISPENSER - OPTIONAL (FIGURES 67)

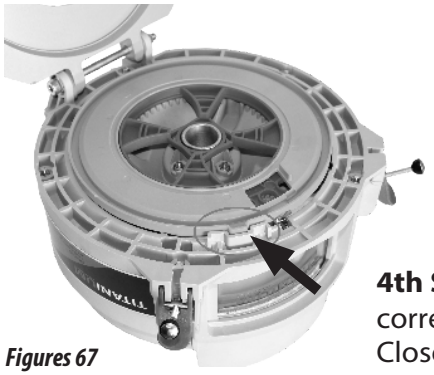
Proceed as follows to change or replace the discs and dispenser rings in the Titanium seeder (optional):

**1st Step:** Open the latches (1).


**2nd Step**: Shake the base cover remove the ring (3) and disc (4).

**3rd Step:** When installing a new disc certify it is being placed in the right position
fit the middle hole of the disc in the centralizing bushing



*Figures 67*

**4th Step:** Fit the ring adapter in the disc abiding by correct positioning.
Close the base cover, and latch the system

**COMMENT**

***Whenever there are seeds in the storage compartment, remove them before changing the disc and ring, thereby avoiding them from spreading on the ground or blocking the closure of the system.***

## PRECAUTIONS IN CLOSING THE TITANIUM DISPENSER - OPTIONAL

If you notice any problems in closing the **TITANIUM** dispenser, follow these steps:

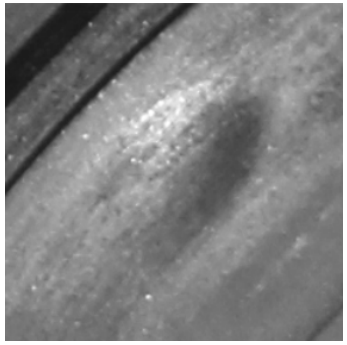
**1st** Check if the disc and ring are assembled correctly in the housing.
**2nd** Check if there is any dirt on the base cover of the **TITANIUM** dispenser, if there is any dirt clean it following the instructions on the next page and the manufacturer's manual.
**3rd** Adjust the latches to facilitate opening the **TITANIUM** dispenser, also lightly tighten when closing.

**CAUTION**

***Never leave the latches loose, as these directly impact the ability for planting in cases of loose discs and rings.***

## CHANGING RINGS BEFORE EVERY NEW PLANTING SEASON TITANIUM DISPENSER - OPTIONAL (FIGURES 68)

In order to maintain the excellent and efficient operation of the **TITANIUM** dispenser, it is necessary to change the rings before every new planting season, such factors as using graphite and operating hours directly impact this wear. In tests conducted, they have shown that a worn ring can increase the number of double seeds in the same hole in the disc. **See the example of the following ring.**



Evident wear in this area can cause double (two seeds dispensed from the same hole in the disc).

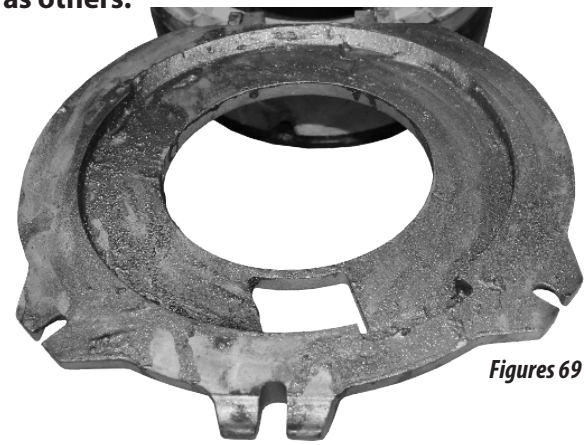

*Figures 68*

**COMMENT** | ***After the crop is planted, disassembly of the TITANIUM dispenser is recommended.***

**CAUTION** | ***For further information on the TITANIUM seed dispenser, consult the instruction manual from the manufacturer at the following site: www.assy.com.br***

## CLEANING THE TITANIUM DISPENSER - OPTIONAL (FIGURES 69)

After finishing the crop seeding, clean the disc and ring in the housing of the **TITANIUM** dispenser. They must be cleaned using a brush and mild detergent, **do not use corrosive products, such as automotive shampoo as well as others.**



*Figures 69*

See the **TITANIUM** dispenser base cover is dirty and encrusted.

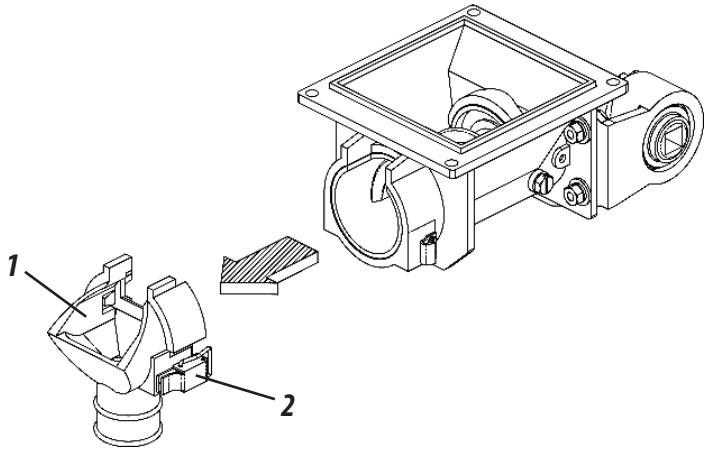
Wash using a brush and mild detergent, scrubbing it well to remove all the dirt.

# MAINTENANCE

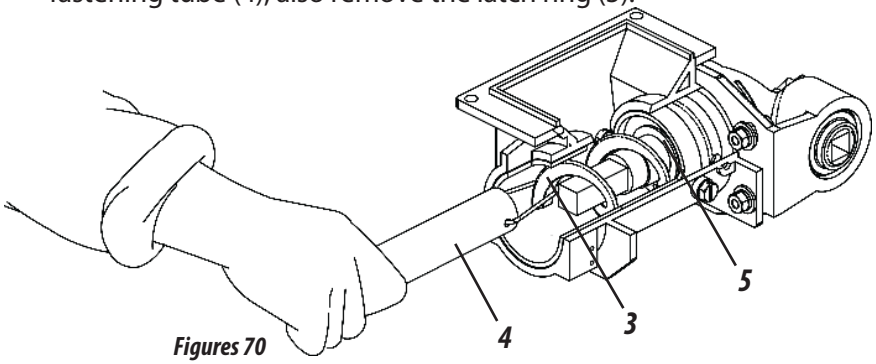
## CLEANING THE FERTISYSTEM CONDUCTOR (FIGURES 70)

After the crop season is over, do not leave fertilizer in the storage compartment. Proceed as follows to clean it:

1- Remove the nozzle (1), through the fast coupler (2).

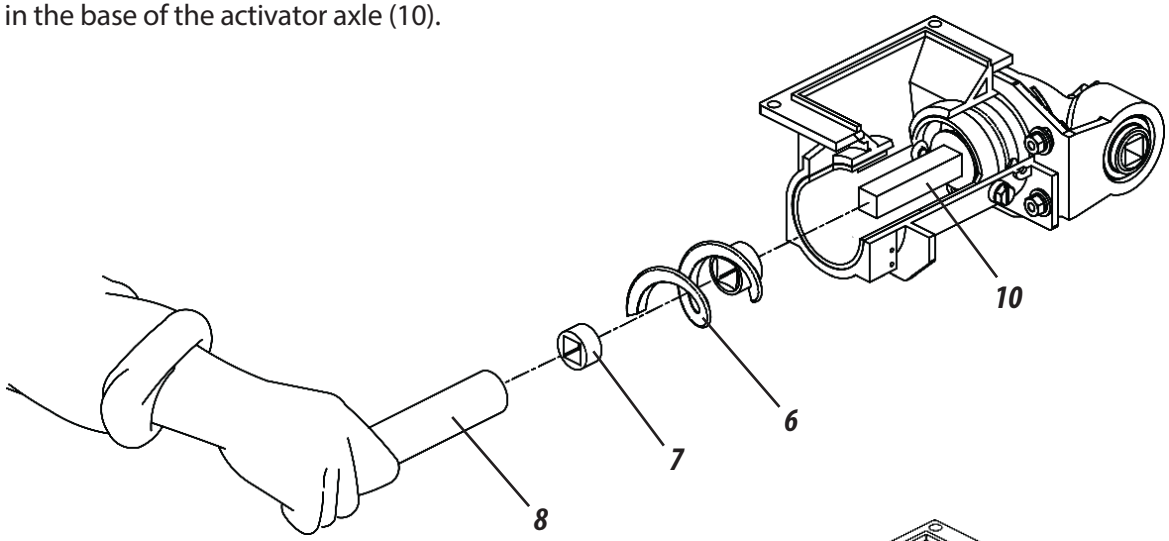


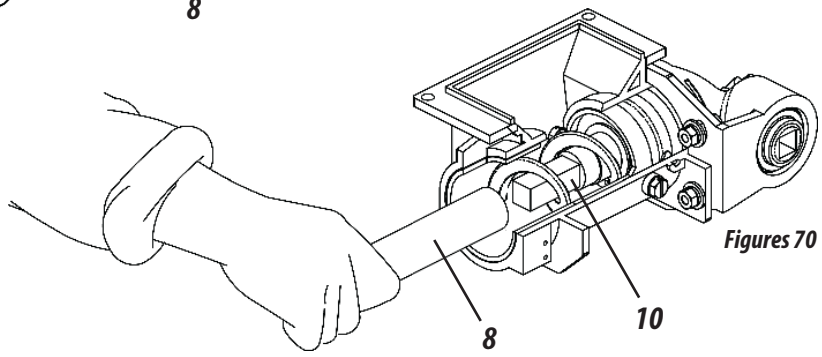

2- Remove the helical spring (3). Pulling it through the ring of the fastening tube (4), also remove the latch ring (5).




Figures 70

3- After cleaning, replace the helical spring (6), together with the latch ring (7), through the fastening tube (8) make sure that the helical spring (6) and the latch ring (7) are well positioned in the base of the activator axle (10).



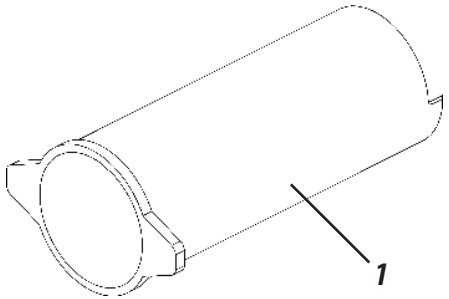

Figures 70

**⚠ CAUTION**

***Keep the helical spring positioned using the latch ring. This procedure avoids damaging the transversal cover when not using fertilizer in the dispenser or when transporting the seeder. If the latch ring is missing, it can cause serious damage to the spreading and/or transmission systems of the seeder.***

## MAINTENANCE TUBE FOR THE FERTISYSTEM CONDUCTOR (FIGURES 71)

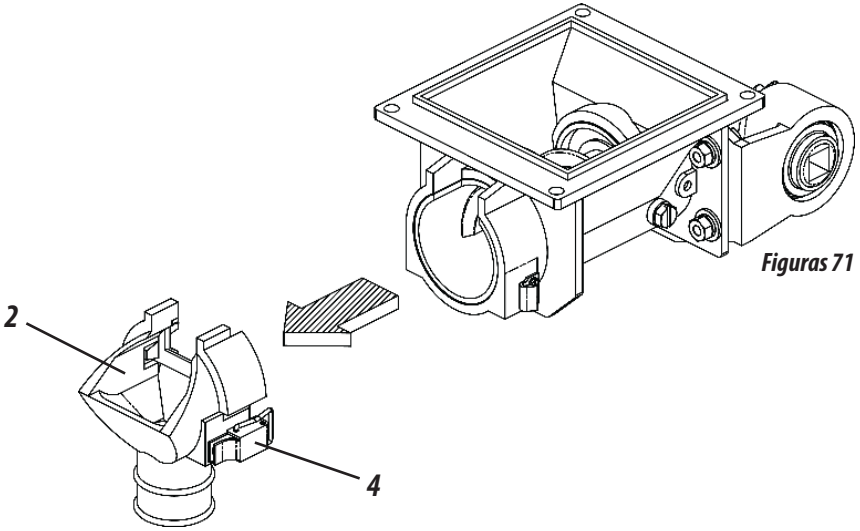
The **SP Topografic** seeder when sold with the Fertisystem conductor is supplied with a maintenance tube (1) for performing maintenance or changing the helical spring, and avoids the need for removing the fertilizer storage compartment.




***Maintenance Tube***
***Code: 60203900930***

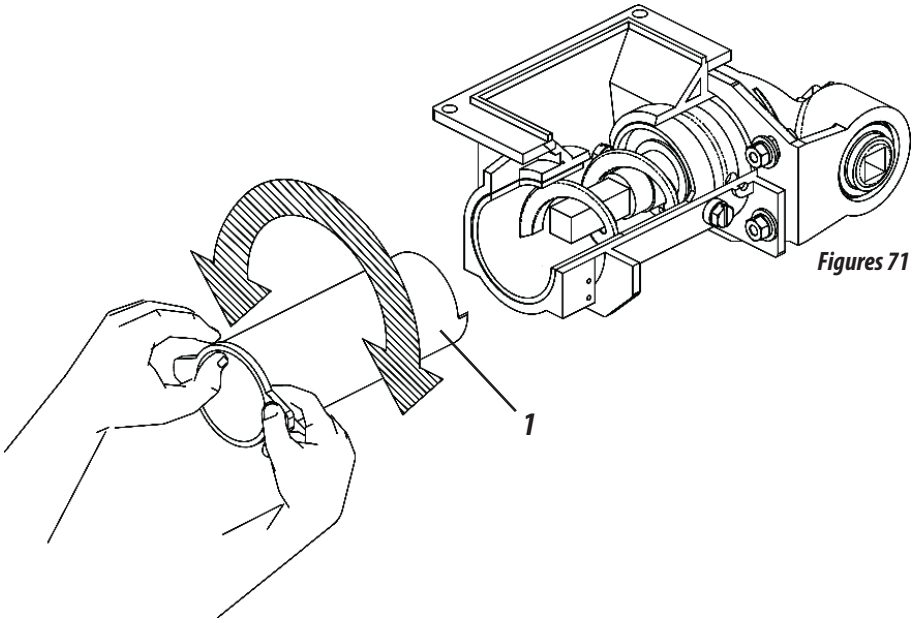
Proceed as follows to perform maintenance on the fertisystem conductor:

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




***Figuras 71***

2- Then, insert the maintenance tube (1) in a turning movement, promoting the dislodging of fertilizer even from the bottom of the dispenser. Afterwards perform the necessary maintenance procedures.




***Figures 71***

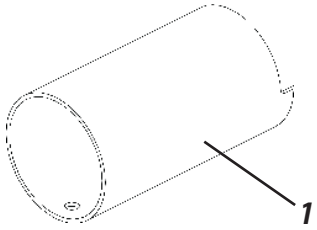
## COMMENT

***The maintenance tube (1) is angled at the end of the tube to facilitate this cleaning procedure.***

# MAINTENANCE

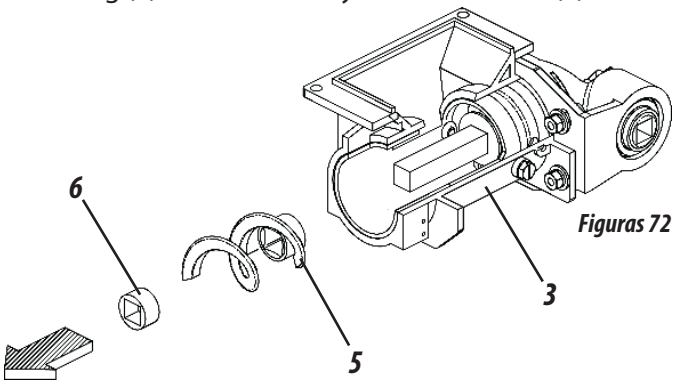
## BLOCKER TUBE FOR/ FERTISYSTEM CONDUCTOR (FIGURES 72)

The **SP Topografic** seeder when sold with the Fertisystem conductor is supplied with a blocker tube when it is necessary to isolate some seeding rows, and then fertilizer spreading does not occur.



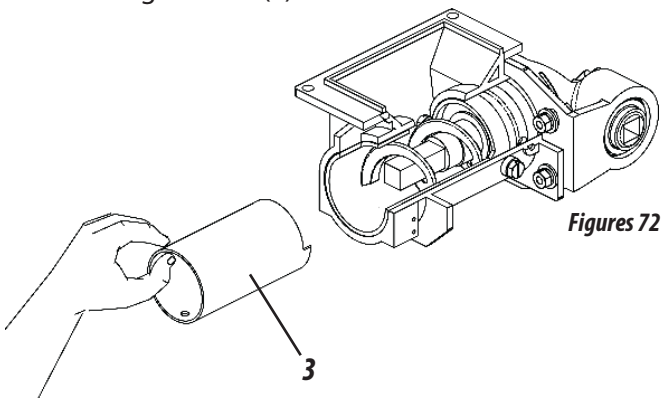

*Blocker Tube*
*Code: 60203900913*

So to do that, remove the helical spring (5) and the latch ring (6) from the Fertisystem conductor (3).




*Figuras 72*

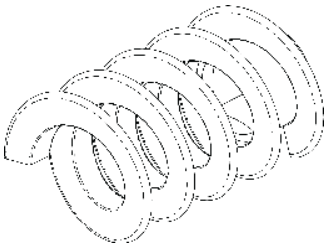
Afterwards, insert the unblocker tube (1) and replace the discharge nozzle (2).



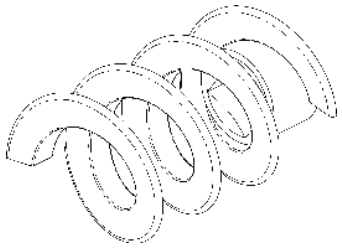

*Figures 72*

## SPRING AND COVERS (OPTIONALS) CONDUTOR FERTISYSTEM (FIGURES 73)

The **SP Topografic** seeder is shipped from the factory with the 2" helical spring mounted, however the seeder is also supplied with a 1" helical spring in its packaging. The seeder can also supplied a ¾" helical spring. **(optional)**.



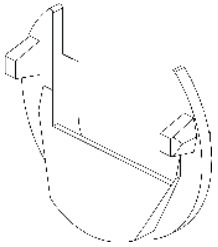
*Helical Spring ( Pitch 3/4" )*
*Code: 60203700418*



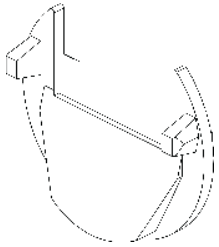
*Helical Spring ( Pitch 1" )*
*Code: 60203700426*

*Figures 73*

The **SP Topografic** seeder is shipped from the factory with a transversal flow cover **(standard),** however the seeder can also be supplied with two other models of flow covers **(optional)**.



*Fertipó Cover*
*Code: 60203900530*



*High Flow Cover*
*Code: 60203900522*

*Figures 73*

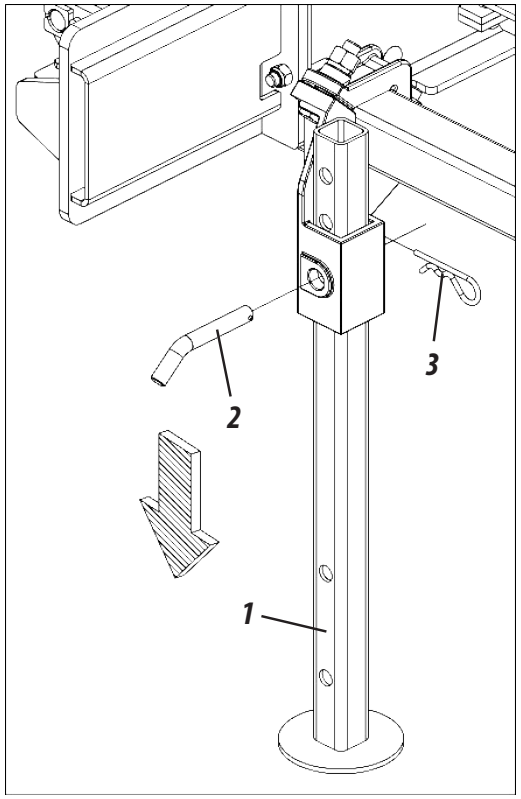
## COMMENT

***Always fill the fertilizer storage compartment in the operating location. This avoids any type of impurity from entering the fertilizer storage compartment Perform daily dosage measurements***

## CHANGING TIRES (FIGURES 74)

Whenever necessary to change or repair a tire, proceed as follows

1- First raise the **SP Topografic** from the rear so that it remains stabilized.




Figures 74

2- Then, lower the support feet (1) in front of the seeder and fasten them using the pin (2) and latch (3).

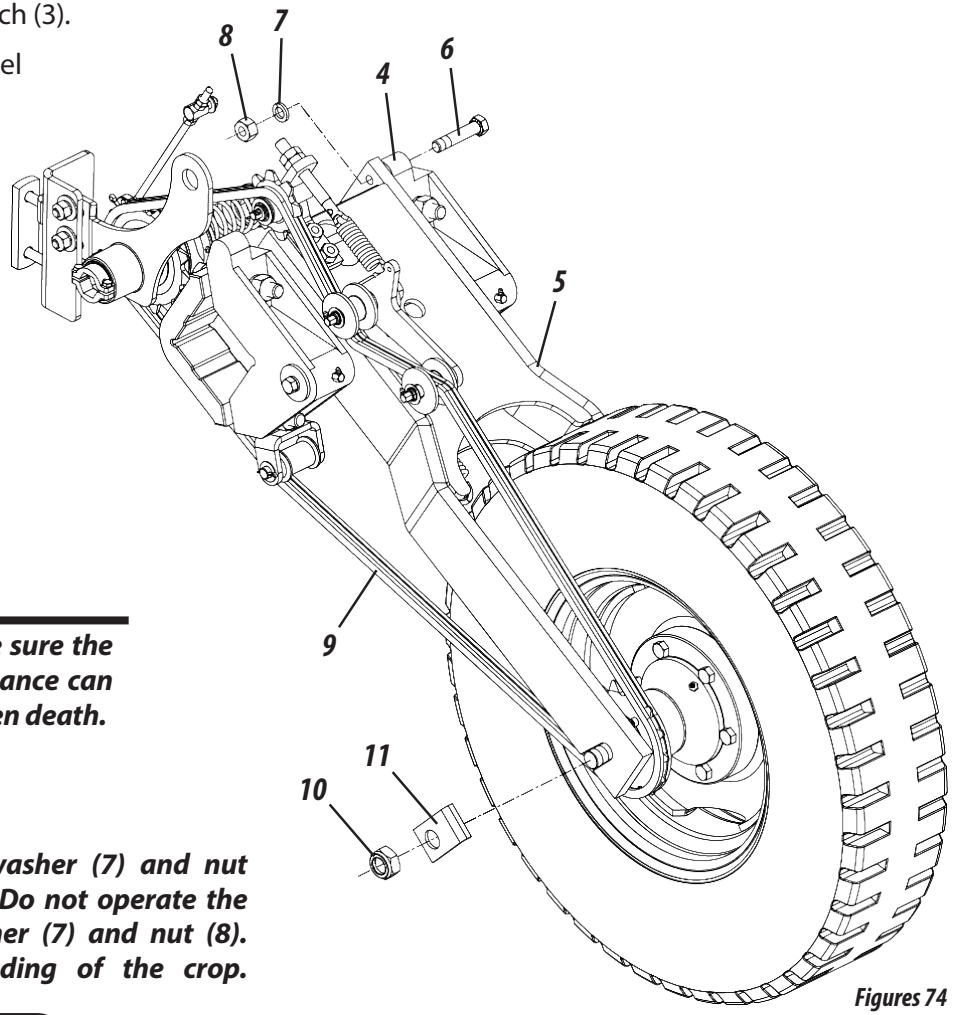
3- After that, latch the clamp (4) in the wheel support (5) using the screws (6), lock washer (7) and nut (8).

4- Following that, completely retract the hydraulic cylinder supporting the tire on the ground.

5- Finally, remove the chain (9), remove the nuts (10) and latch (11) for removing the tire.

**IMPORTANT**

***Before changing or repairing a tire, make sure the seeder is properly supported. Non-compliance can cause serious damages, accidents, and even death.***




Figures 74

**CAUTION**

***After changing the tire, remove the screw (6), lock washer (7) and nut (8) loosening the clamp (4) from the wheel support (5). Do not operate the seeder without first removing the screw (6), lock washer (7) and nut (8). Ignoring this warning can cause failure in the seeding of the crop.***

# OPTIONS

The **SP Topografic** seeder offers optional equipment that can be purchased based on the necessities of your work. Some of the optional equipment is the hydraulic system without a row marker (1) and the hydraulic system with a row marker (2).

## HYDRAULIC SYSTEM WITHOUT/ ROW MARKER (FIGURE 75 / TABLE 14)

| *Model* | *Codes:* |
|---|---|
| ***SP TOPOGRAFIC 4500*** | 55280108110 |
| ***SP TOPOGRAFIC 5500*** | 55280107890 |
| ***SP TOPOGRAFIC 6500*** | 55280107890 |
| ***SP TOPOGRAFIC 7500*** | 55280107667 |
| ***SP TOPOGRAFIC 8500*** | - |
| ***SP TOPOGRAFIC 9500*** | 55280108064 |

***Table 14***

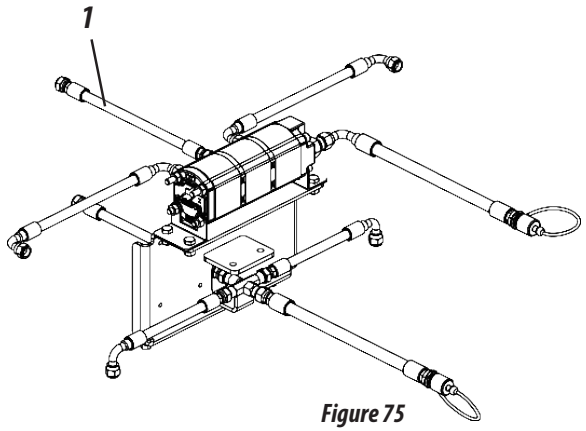



***Figure 75***

## HYDRAULIC SYSTEM WITH / ROW MARKER (FIGURE 76 / TABLE 15)

| *Model* | *Codes:* |
|---|---|
| ***SP TOPOGRAFIC 4500*** | 55280108099 |
| ***SP TOPOGRAFIC 5500*** | 55280107904 |
| ***SP TOPOGRAFIC 6500*** | 55280108315 |
| ***SP TOPOGRAFIC 7500*** | 55280107874 |
| ***SP TOPOGRAFIC 8500*** | - |
| ***SP TOPOGRAFIC 9500*** | 55280108072 |

***Table 15***

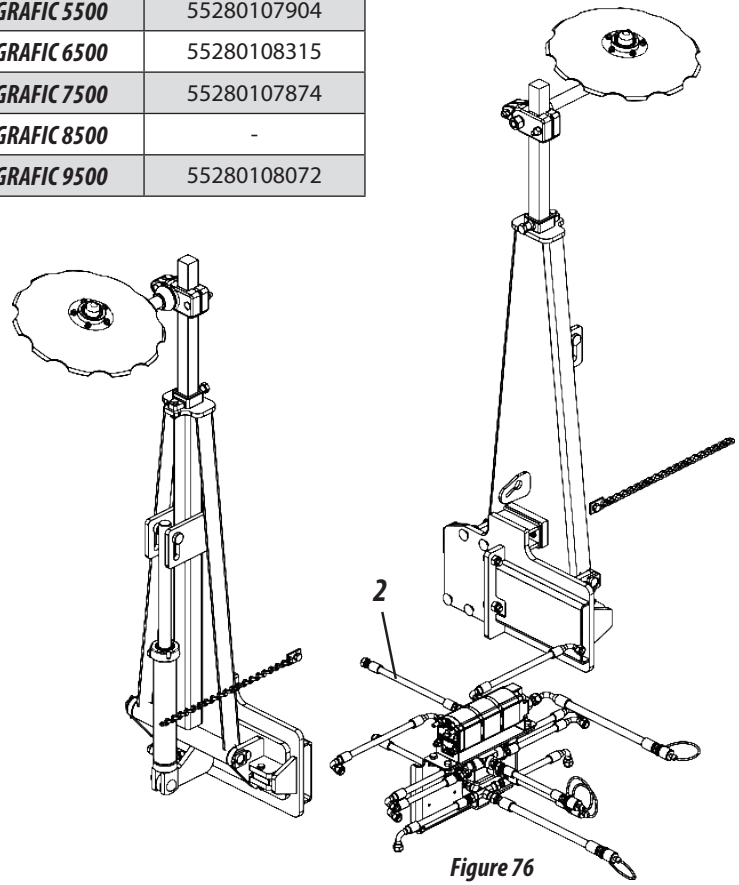


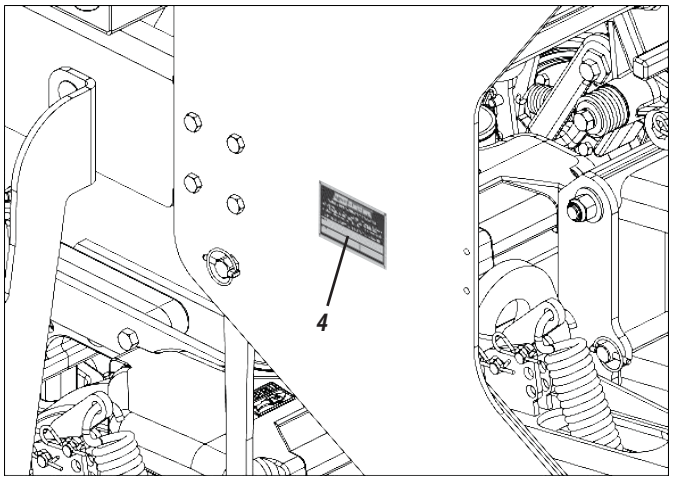

***Figure 76***

## PRODUCT IDENTIFICATION (FIGURES 77)

1- Whenever consulting the part catalog or requesting technical support from Baldan, always identify the model (1), serial number (2), and manufacturing date (3) found on the identification label (4) of the seeder.

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

*Figures 77*


Identify the following data so that you will always have correct information available on the life of your seeder.

***Owner:*** _____

***Reseller:*** _____

***Farm:*** _____

***City:*** _____ ***State:*** _____

***Warranty Certificate #:*** _____

***Model:*** _____

***Serial #:*** _____

***Purchase Date*** _____ ***Invoice #:*** _____

## CAUTION

***The drawings in this Instruction Manual are merely illustrative. In order to provide a better overview and detailed instructions, some drawings have been removed from the manual, as well as safety shielding devices (covers, shields, etc.). Never operate the seeder without installing these devices.***

**MARKETING**
*Catalog and Manual Publishing*

*Code: 60550106178*
*Revision: 00*
*CPT: SPTG08117*

**CONTACT**

*In case of any doubts/questions, consult After-Sales. Telephone: 0800-152577*
*E-mail: posvenda@baldan.com.br*

# NOTATIONS

# WARRANTY CERTIFICATE

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

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

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

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

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

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

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

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

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

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

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

## INSPECTION AND DELIVERY CERTIFICATE

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

*Implement:* _____

*Serial #:* _____

*Date:* _____ *Invoice:* _____

*Reseller:* _____ *City:* _____

*State:* _____ *POSTAL CODE:* _____

*Owner:* _____ *Phone:* _____

*Address:* _____ *Number:* _____

*City:* _____ *State:* _____

*E-mail:* _____

*Sales Date:* _____

*Signature / Reseller Stamp* _____

*1st Owner*

# CERTIFICATE

## INSPECTION AND DELIVERY CERTIFICATE

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

*Implement:* _____

*Serial #:* _____

*Date:* _____ *Invoice #:* _____

*Reseller:* _____ *City:* _____

*State:* _____ *POSTAL CODE:* _____

*Owner:* _____ *Phone:* _____

*Address:* _____ *Number:* _____

*City:* _____ *State:* _____

*E-mail:* _____

*Sales Date:* _____

*Signature/Reseller's Stamp* _____

*2ª - Reseller*

## INSPECTION AND DELIVERY CERTIFICATE

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

*Implement:* _____

*Serial #:* _____

*Date:* _____ *Invoice #:* _____

*Reseller:* _____ *City:* _____

*State:* _____ *POSTAL CODE:* _____

*Owner:* _____ *Phone:* _____

*Address:* _____ *Number:* _____

*City:* _____ *State:* _____

*E-mail:* _____

*Sales Date:* _____

*Signature/Reseller's Stamp* _____

*3ª - Manufacturer*

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

1.74.05.0059-5

AC MATÃO
ECT/DR/SP

# REPLY LETTER

**NO STAMP IS NECESSARY FOR MAILING**

## THE STAMP WILL BE PAID BY:


**BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

Av. Baldan, 1500 | Nova Matão | CEP: 15993-000 | Matão-SP | Brasil
Fone: (0**16) 3221-6500 | Fax: (0**16) 3382-6500
Home Page: www.baldan.com.br | e-mail: sac@baldan.com.br
Exportation: Phone: 55 16 3321-6500 | Fax: 55 16 3382-4212 |
3382-2480 e-mail: export@baldan.com.br

**BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

Av. Baldan, 1500 | Nova Matão | CEP: 15993-000 | Matão-SP | Brasil
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Exportação: Fone: 55 (16) 3221-6500 | Fax: 55 (16) 3382-4212 | 3382-2480
e-mail: export@baldan.com.br

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