



# VENCE TUDO

FORTE ATÉ NO NOME



## OPERATION MANUAL

**SEEDER FERTILIZER HYDRAULIC**

**PA PANTOGRÁFICA Série Ouro**

03/2018  
Review 00



# CERTIFICATE OF TECHNICAL DELIVERY No. \_\_\_\_\_

Verify that the information below is being performed by the reseller of your choice, as well as whether the service was effective:

1. Instructions and how to use the equipment;
2. Maintenance, conservation, lubrication and safe usage rules;
3. Adjustments and correct use of its optional features;
4. Verification and re-tightening of components and checking of adjustments;
5. Presentation of the operator's manual and parts catalog;
6. Delivery of the additional parts box according to the operator's manual;
7. Verification of correct completion of this certificate.

**DEALER** \_\_\_\_\_ PHONE: (        ) \_\_\_\_\_  
 CITY: \_\_\_\_\_ COUNTRY: \_\_\_\_\_ ZC: \_\_\_\_\_ - \_\_\_\_\_  
 INVOICE SALES FOR CUSTOMER No.: \_\_\_\_\_ DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 TECHNICAL OR MECHANICAL PERSON IN CHARGE: \_\_\_\_\_  
 MACHINE: \_\_\_\_\_  
 MODEL: \_\_\_\_\_ SERIES: \_\_\_\_\_ MADE.: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 OPTIONAL FEATURES: \_\_\_\_\_

**CUSTOMER** \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 CITY: \_\_\_\_\_ COUNTRY: \_\_\_\_\_ ZC: \_\_\_\_\_

| DELIVERY AND TECHNICAL ASSISTANCE EVALUATION                            | Great | Good | Regular |
|---|-------|------|---------|
| Delivery of equipment was performed within deadline.                    |       |      |         |
| Technical delivery was performed in order to clear up all doubts.       |       |      |         |
| Equipment demonstration was satisfactory.                               |       |      |         |
| The equipment and its accessories were delivered in perfect conditions. |       |      |         |
| The request of parts or technical assistance was efficient.             |       |      | R       |
| Reseller complies with parts or technical assistance requests.          |       |      |         |

|                     |
|---------------------|
| <b>Suggestions:</b> |
|                     |
|                     |
|                     |
|                     |
|                     |
|                     |
|                     |
|                     |

**NOTE:** After the conference and execution of all seven (7) items above and filling out this document completely, sign it and send it to the Vence Tudo Customer Service Dept. within a maximum of one year.

**Failure to send this technical delivery certificate will prevent warranty analysis.**

\_\_\_\_\_  
**Authorized Reseller Signature**

\_\_\_\_\_  
**Customer Signature**



## PRESENTATION

The **VENCE TUDO** Agricultural Implements Industry, founded in 1964 in Alfredo Brenner, in the district of Ibirubá in Rio Grande do Sul, has been following a mission defined by its founder Nelson Lauxen, who is tirelessly seeking the development of agriculture through resistant, easy to handle agricultural implements, with quality and productivity gain.

**VENCE TUDO's** mission is to seek to develop its products from users' needs through partnerships with universities, research centers and its engineering team, continually improving its products within technologically advanced concepts.

The products after being developed by the company, are thoroughly tested by the farmers themselves in the most different regions, being placed under various conditions of use, seeking to assess their degree of strength and functionality. After the product is approved in field tests, it will go into production within modern quality concepts.

Customer satisfaction with **VENCE TUDO** products is our primary concern.

The purpose of this manual is to familiarize you with the operation of your equipment and the small care it takes to have a long service life. And as important as learning how to take care of it and how to operate it properly is to know some aspects that could compromise the warranty due to negligence, misuse, unauthorized adaptations, and others that might affect it in some way. For this reason we recommend a careful reading of the Warranty Certificate.

The parts catalog contains all the information you need for replacing parts. The correct interpretation of will give you the conditions to carry out the necessary replacements according to the equipment models identified and described.

In case of any doubt during a work operation, contact **VENCE TUDO LTDA.**, so that we can through the TECHNICAL ASSISTANCE department solve the existing doubts, further improving the customer service, thus ensuring a good relationship between the **VENCE TUDO** and the **FARMER**.

We take the opportunity to congratulate you for choosing a **VENCE TUDO** product, and we can assure you that we have the utmost interest in keeping you satisfied.

**VENCE TUDO**  
Indústria, Comércio, Importação  
e Exportação Ltda.



## **TO VENCE TUDO CUSTOMER**

*Dear farmer, congratulations for purchasing a **VENCE TUDO** product, as the development of our products is based mainly on customer satisfaction. Your satisfaction in reaping the profits generated through our implements is ours as well. Our thinking is to attend with the utmost seriousness and trust our partner, you farmer because it is through your profitability that we are sure to build a strong and profitable agriculture.*

*This product is developed under the most discerning concepts in agricultural technology for production. Using the most modern equipment for industrial manufacturing, having as fundamental interest the development of a strong and resistant product that really meets your needs, with high durability and long service life.*



**WARRANTY TERMS: NO. \_\_\_\_\_**

The warranty for VENCE TUDO products is guaranteed to the purchaser for a period of 01 (one) year from the date of purchase against defects in workmanship or materials that compromise the operation of the product, except for components purchased from third parties, which have manufacturer's own guarantees.

**TERMS**

**1-** The product is warranted against any manufacturing defects found, provided that all parts and components have been supplied by VENCE TUDO Ltda and delivered by duly authorized companies or persons;

**2-** The parts and / or components covered by the warranty will only be replaced or refunded if the defects are verified by the Technical Assistance or by a person duly authorized by VENCE TUDO Ltda. Parts that suffer wear due to use are excluded, depending on operating conditions and factors related to the formation and specific characteristics of each soil. It is indispensable to present the correctly completed technical delivery certificate and the purchase invoice;

**3-** Once the conditions of the Warranty Term have been satisfied, VENCE TUDO Ltda will repair the defect or exchange the component free of charge. In case of cancellation or expiration of the warranty period, technical assistance will be charged at the price of the day of service and replacement of parts and components, if necessary.

**CANCELLATION OF WARRANTY**

The warranty loses its validity in cases of:

**1-** Damage caused to the equipment due to misuse, abuse, negligence or lack of proper maintenance, in contravention of the manufacturer's instructions published in the corresponding operating manual;

**2-** Damage caused by accidents or natural agents;

**3-** Repairs, modification or violation of parts and components by unauthorized persons;

**4-** Amendments, erasure or deletion of data on the Technical Delivery certificate, the Warranty Certificate, the purchase invoice or the nameplate.

**IMPORTANT**

If your product is defective during the warranty period, contact your dealer or the manufacturer only. It should only be repaired or disassembled in the presence of persons duly accredited by the manufacturer, as well as with the use of original spare parts. Otherwise the warranty will be forfeited.

**PLEASE KEEP THE INVOICE, IT IS THE REASON FOR THE WARRANTY PERIOD.**

CUSTOMER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ COUNTRY: \_\_\_\_\_

MODEL: \_\_\_\_\_ SERIES: \_\_\_\_\_ YEAR: \_\_\_\_\_

DELIVERY DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DEALER: \_\_\_\_\_ CITY: \_\_\_\_\_ COUNTRY: \_\_\_\_\_

I declare faithfully and with undisputed effect that I received on this date the PRODUCT (Model): \_\_\_\_\_ as specified above in perfect condition and that the warranty method used was accepted by me.

CUSTOMER: \_\_\_\_\_

DEALER: \_\_\_\_\_

**CERTIFICATE OF TECHNICAL DELIVERY No. \_\_\_\_\_**

Remove here



CUSTOMER: \_\_\_\_\_ CITY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ COUNTRY: \_\_\_\_\_

MODEL: \_\_\_\_\_ SERIES: \_\_\_\_\_

DEALER: \_\_\_\_\_ CITY: \_\_\_\_\_

Invoice No.: \_\_\_\_\_ Date of sale: \_\_\_\_/\_\_\_\_/\_\_\_\_

**DEALER, SUBMIT THIS CERTIFICATE TO THE FACTORY SOON AFTER DELIVERY.**

**VENCE TUDO**

Remove here





**I declare that on this date I received the model described above, according to the specifications above in perfect condition and that the warranty method was accepted by me.**

**DATE:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**CUSTOMER:** \_\_\_\_\_

**DELIVERY DATE:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**VENCE TUDO**



## INDEX

|  |           |
|--|-----------|
| <b>1. IDENTIFICATION.....</b>  | <b>11</b> |
| <b>2. CARING FOR THE ENVIRONMENT.....</b>                                      | <b>12</b> |
| <b>3. SAFETY RULES.....</b>  | <b>13</b> |
| 3.1- Important Instructions When Receiving the Equipment.....                  | 13        |
| 3.2- Identify the Safety Information.....                                      | 13        |
| 3.3- Follow the Safety Instructions.....                                       | 13        |
| 3.4- Intended Use.....   | 14        |
| 3.5- Use Not Allowed.....  | 14        |
| 3.6- Operate and Transport Equipment Safely.....                               | 14        |
| 3.7- Transportation of Equipment in Trucks.....                                | 16        |
| 3.8- Avoid Heating Parts Near the Fluid Lines.....                             | 16        |
| 3.9- Avoid Fluids Under High Pressure.....                                     | 16        |
| 3.10- Emergency Procedures.....  | 16        |
| 3.11- Clean Water Reservoir.....   | 17        |
| 3.12- Safe Tire Filling Procedures.....  | 17        |
| 3.13- Security Lights and Devices.....   | 17        |
| 3.14- Safety Precautions in Equipment Maintenance.....                         | 18        |
| 3.15- Proper Waste Disposal.....   | 19        |
| <b>4. MAINTENANCE.....</b>   | <b>19</b> |
| <b>5. GREASING.....</b>  | <b>20</b> |
| 5.1- Grease Points.....  | 20        |
| <b>6. TECHNICAL SPECIFICATIONS.....</b>  | <b>22</b> |
| <b>7. FEATURES.....</b>  | <b>23</b> |
| 7.1- Basic Dimensions.....   | 23        |
| 7.2- General Features.....   | 24        |
| <b>8. GENERAL INFORMATION.....</b>   | <b>25</b> |
| <b>9. COMPONENTS IDENTIFICATION.....</b>                                       | <b>26</b> |
| 9.1- 3000/ 5000/ 6000 / 6000 SPECIAL and 7000 Gold Series PA PANTOGRAPHIC..... | 26        |
| 9.2- 6000 / 6000 SPECIAL Gold Series PA PANTOGRAPHIC.....                      | 27        |
| <b>10. LOCATION OF STICKERS IN THE EQUIPMENT.....</b>                          | <b>28</b> |
| 10.1- Front View.....  | 28        |
| 10.2- Rear View.....   | 29        |
| <b>11. PREPARATION FOR PLANTING.....</b>                                       | <b>30</b> |
| 11.1- Tractor.....   | 30        |
| 11.1.1- Coupling the Seeder - Tractor.....                                     | 30        |
| 11.1.2- Leveling of the Seeder.....  | 31        |
| 11.2- Recommendations Before Starting the Planting Operation.....              | 32        |
| 11.2.1- Tire Pressure.....   | 32        |
| 11.2.2- Greasing.....  | 32        |
| <b>12. OPERATIONS.....</b>   | <b>32</b> |
| 12.1- Assemblies for Planting Soybean and Corn.....                            | 32        |
| 12.2- Spacing Between Planting Rows.....                                       | 33        |
| 3000 PA PANTOGRAPHIC Gold Series.....  | 33        |
| 5000 PA PANTOGRAPHIC Gold Series.....  | 36        |
| 6000 PA PANTOGRAPHIC Gold Series.....  | 38        |
| 6000 SPECIAL PA PANTOGRAPHIC Gold Series.....                                  | 41        |
| 7000 PA PANTOGRAPHIC Gold Series.....  | 42        |
| 12.3- Change in Spacing of Seed and Fertilizer Rows.....                       | 46        |
| 12.4- Seed Distribution System.....  | 47        |

|   |           |
|---|-----------|
| 12.4.1- Seed Metering Discs.....  | 47        |
| 12.4.2- Replacement of Seed Distribution Discs.....                                 | 49        |
| 12.4.3- Assembly of Seed Hoppers and Replacement of Rollers.....                    | 49        |
| 12.4.4- TABLE: Seed Distribution Adjustment.....                                    | 50        |
| 12.4.5- Seed Axis Transmission.....   | 50        |
| 12.4.6 - Calculation To Determine Population Or Number Of Plants By Hectare.....    | 51        |
| 12.4.7 - Correction of Germinative Power (Percentage).....                          | 51        |
| 12.4.8 - Correction of Slippage (Percentage).....                                   | 51        |
| 12.4.9- APPROXIMATE TABLE: Number of seeds per hectare.....                         | 52        |
| 12.5- Fertilizer Distribution System.....   | 53        |
| 12.5.1 - Adjustment of the Distribution System with Fertisystem Meter.....          | 53        |
| 12.5.2 - Adjusting the Distribution System With Spindle Meter.....                  | 55        |
| 12.5.3 - Calculation of Fertilizer Amount According to Spacing.....                 | 57        |
| 12.6- Theoretical Calculation: Seed and Fertilizer Distribution.....                | 57        |
| 12.7- Transmission Chains.....  | 57        |
| 12.8- Seeding Assemblies.....   | 58        |
| 12.8.1 - Mobile Furrower.....   | 58        |
| 12.8.2 - Depth and Position of the Fertilizer Furrower and Cutting Disc Height..... | 58        |
| 12.8.3 - Double Discs For Fertilizer.....   | 59        |
| 12.8.4 - Adjusting the Inner Cleaner of Double Seed Discs.....                      | 59        |
| 12.8.5 - Depth of Cutting and Fertilizer Furrower.....                              | 59        |
| 12.8.6 - Amplitude and Spring Pressure Adjustment.....                              | 60        |
| 12.8.7 - Adjusting the Inner Cleaner of Double Seed Discs.....                      | 60        |
| 12.8.8 - Depth Limiting System.....   | 61        |
| 12.8.8.1 - "V" Limiter Adjustment With Scale: Independent and Fixed.....            | 62        |
| 12.8.8.2 - Adjusting the Premium Limiter.....                                       | 62        |
| 12.8.9 - Compaction System.....   | 63        |
| 12.8.9.1 - Adjusting the Compaction: 3rd compaction wheel .....                     | 64        |
| 12.8.9.2 - Adjusting the Compaction: "V" Compaction Strip.....                      | 64        |
| 12.8.9.3 - Adjusting the Compaction: Premium Compactor.....                         | 65        |
| 12.8.10 - Planting Height Adjustment and Oscillation.....                           | 65        |
| 12.8.10.1 - Tire Replacement.....   | 66        |
| 12.9- Optionals Assemblies.....   | 67        |
| 12.9.1- Hydraulic Row Marker.....   | 67        |
| <b>13. SAFETY RULES - TRANSPORTATION.....</b>                                       | <b>70</b> |
| 13.1- Transportation On Truck Or Wagon.....   | 70        |
| 13.2- Transport by Tractor Drawbar.....   | 71        |
| <b>14. MAINTENANCE.....</b>   | <b>71</b> |
| 14.1- Washing and Storage Equipment.....  | 71        |
| 14.1.1- Consequences of Good or Bad Use and Conservation.....                       | 71        |
| 14.1.2- Oxidation Prevention Measures.....  | 72        |
| 14.2- Double Discs.....   | 74        |
| 14.3- Maintenance at the End of Harvest.....  | 74        |
| 14.3.1- Cleaning Hoppers.....   | 74        |
| 14.3.2- Seed Meters.....  | 76        |
| 14.3.3- Greasing.....   | 76        |
| <b>15. TECHNICAL RECOMMENDATIONS.....</b>   | <b>77</b> |
| <b>16. WORKING SPEED CALCULATION.....</b>   | <b>78</b> |
| <b>17. ADDITIONAL PARTS BOX.....</b>  | <b>79</b> |

## 1. IDENTIFICATION

When contacting the VENCE TUDO Service Center, please provide the following information: MODEL, SERIES and YEAR of manufacture of your product. These data are on the Product Identification Plate, affixed to the chassis, always on the left side.

A rectangular product identification plate with a double-line border. On the left side, there is a logo consisting of a yellow and black stylized plant or tool above the text "VENCE TUDO" in a red box. Below the logo is the slogan "Para obter os melhores". To the right of the logo, the text reads "INDÚSTRIA DE IMPLEMENTOS AGRÍCOLAS" and "VENCE TUDO" in large, bold letters, followed by "IMPORTAÇÃO E EXPORTAÇÃO LTDA.". Below this, the address and contact information are listed: "ROD. RS 223 - KM - 53 - IBIRUBÁ - RS - BRASIL", "CEP 98200-000 - FONE/FAX DDD 54 3324-8000", and "FONE/FAX DDI +55 54 3324-8000". At the bottom left, there are three input fields: "MOD.:" followed by a long box, "ANO:" followed by a short box, and "SÉRIE:" followed by a long box. At the bottom right, the text "MADE IN BRAZIL" is printed.

When replacing parts, always use VENCE TUDO original spare parts. To facilitate the identification of each part, use the PARTS CATALOG.

All information contained in this Operation Manual is subject to variation. Weights, dimensions and specifications are approximate only and the illustrations do not necessarily reflect the equipment in its standard condition. In order to obtain accurate information about any particular model, please consult your VENCE TUDO Distributor / Representative.

***The VENCE TUDO Ltda. Agricultural Implements Industry in constant search for improvement, reserves the right at any time to modify its products to better meet the needs and expectations of its consumers, without incurring the obligation to do the same on products previously sold.***

## 2. CARING FOR THE ENVIRONMENT

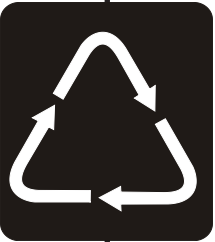
*Dear User!*



*Let us value nature.*

*The uncontrollable dumping of waste in soil and water, harms the life of all living beings on the planet.*

*Always observe the recommendation on the use of chemicals in doses recommended by the manufacturer and responsible agronomist. Overuse and misuse of chemicals may affect people, animals and the environment.*



*Dumping oil and fuel oils, plastic packaging and agrochemicals, etc., into the soil and water directly interferes with the balance of the ecosystem from the topsoil to the groundwater.*

*Properly manage these wastes by informing yourself how to recycle or reuse them.*

*By doing this you will be contributing to the conservation and balance of the ecosystem.*

### IMPORTANT

*The layer of straw on the soil is critical to maintain organic matter levels, moisture and living organisms. In addition, these factors promote soil aeration and reduce the effects of compaction.*

*Use the regulated straw chopper to evenly distribute it.*

*Adopt management methods that contribute to the reduction of diseases, pests and invaders.*

*Follow the agronomic recommendations on the use of fertilizers, corrective agents and agrochemicals. Overuse and misuse of chemicals can contaminate the soil and groundwater.*

*Obey the legislation in force for the disposal of lubricants and pesticide containers, as well as any product (solid, liquid or gaseous) that can generate any type of damage to the environment.*

### 3. SAFETY RULES

#### 3.1- Important instructions when receiving the equipment

- Visually inspect all components of the equipment to check for damage resulting from transportation.
- Damage resulting from transportation is not covered by warranty. In the event of shipping malfunctions, notify the VENCE TUDO Shipping Department immediately.

#### 3.2- Identify the safety information



**Upon seeing this symbol on your equipment and in this manual, pay attention to possible injury. It indicates a risk situation and represents a safety alert (hazard, alert and care).**

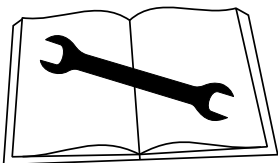
**Follow the operating safe practices and precautions recommended. Safety notices such as HAZARD, WARNING are located next to specific hazards. The word CAREFUL draws one's attention to safety messages in this manual.**

#### 3.3- Follow the safety instructions

The equipment follows, in accordance with the design and construction, the MACHINES AND EQUIPMENT WORK SAFETY norm NR-12.



**WARNING**



**Before starting operations, carefully read all the safety messages in this operating manual and safety notices on your equipment.**

- Keep the safety stickers in good condition. If they are damaged or have been lost, they must be replaced.
- To perform the replacement of stickers, contact the Parts Center department or an authorized VENCE TUDO Dealer.
- Learn to operate your equipment properly.
- Do not allow anyone to operate the equipment without being trained.
- Keep your equipment in good working condition.
- Changes in the original characteristics of the equipment are not authorized as they may impair its operation, safety and affect the life of the product.

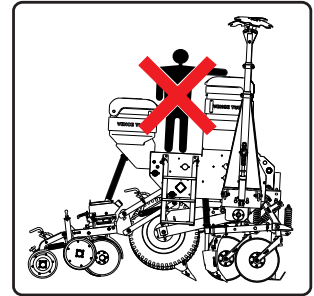
**If you do not understand part of this manual and need technical assistance, contact the Technical Assistance department or an authorized reseller.**

### 3.4- Intended use

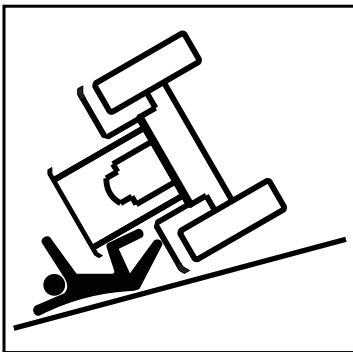
- This equipment is for planting use only.
- It must be operated by a properly trained operator.

### 3.5- Use not allowed

- It is not permitted to tow, attach or push other attachments other than those designated for this.
- To avoid risk of serious injury or death, do not carry persons or objects in the parts of the equipment.
- The equipment should only be used by an experienced operator who is familiar with all the controls and driving techniques.
- After coupled to the seeders:
  - It is not allowed to go up or down the equipment in operation.
  - To access the top of the implements, the ladders must be used and the seeders must be fully opened and lowered.



## WARNING



**Improper use of the equipment especially on uneven ground, descending or rising slopes, can cause it to fall. Be very careful in the case of rain, snow, ice or any case of slippery ground. If necessary, get off the machine and check the consistency of the soil.**

**Never get off the machine when it is moving or in the case of falling, to avoid being crushed.**

### 3.6- Operate and transport equipment safely

- Operate the equipment only when all safeguards are installed in their correct positions.
- Keep away when the machine is in operation.
- Keep away from moving mechanisms such as gears, chains, and power-take-off shafts (Figure A and B).
- Do not operate the implement under the effect of alcohol, tranquilizers or stimulants.
- The equipment has special features such as the lateral excess, which do not allow the transit in public roads or highways. If it is necessary to transit on roads, consult the competent authorities and proceed according to the current traffic legislation.

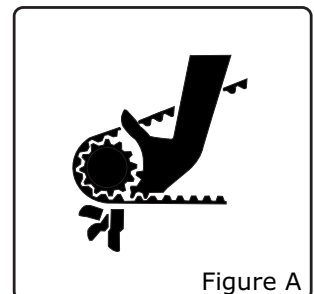


Figure A

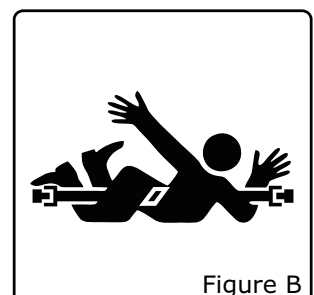
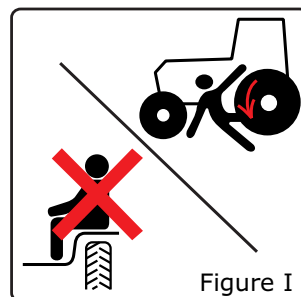
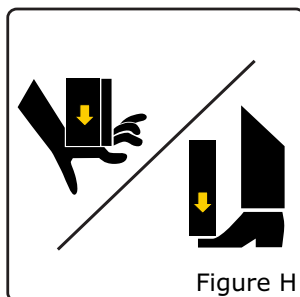
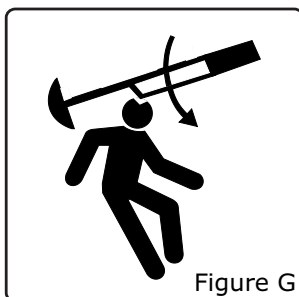
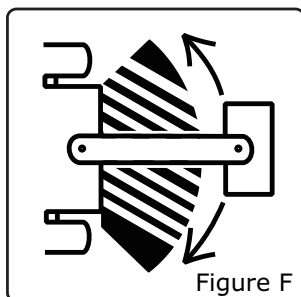
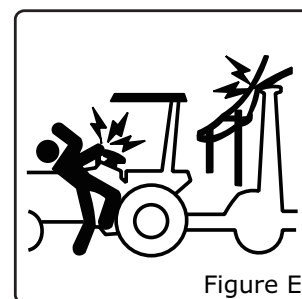
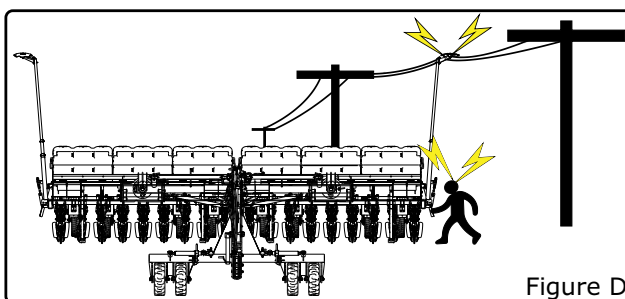
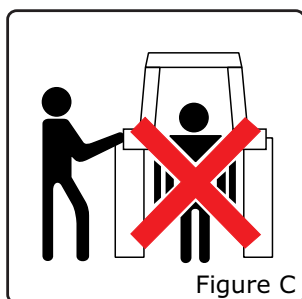


Figure B

- Periodically inspect all safety components of the equipment before using it.
- Check if your equipment is in good working condition. In the event of any irregularity that may interfere with the operation of the equipment, ensure proper maintenance before any operation or transportation.
- Before operating it, check for any persons or obstructions near it (Figure C).
- Do not operate near obstacles, rivers or streams.
- Avoid holes, ditches and obstacles that may cause overturning of the equipment, especially on slopes.
- Make a thorough evaluation of the workplace before any operation. Check for obstacles near the equipment such as trees, walls, and power grids that pose a risk of serious or fatal injury (Figure D and E).



- Do not cross roads or paths at night.
- Drive carefully and slowly on rough terrain.
- Reduce speed on wet, frozen or gravel surfaces.
- Slow the speed on turns (Figure F).
- In maneuvers or sharp turns, do not allow the tractor wheels to touch the equipment header (Figure F).
- Avoid sharp turns on slopes or hills.
- Avoid slopes that are too steep for the operation of the equipment, as this may lead to a lack of uniformity of cutting power, in addition to causing risks of tipping.
- Do not move the row markers during transport (Figure G).
- Be careful when handling the jack or the support leg and the hydraulic cylinders as there is a risk of injury (Figure H).
- Do not give rides (Figure I).

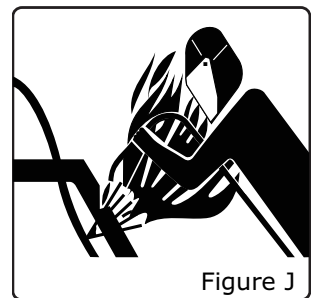
- When attaching the equipment to the tractor, be sure to install the locking pin of the hitch.
- To climb on the implement, use only the non-slip steps of the ladder. Keep steps, handrails and platform always clean of oil or grease residues, which can cause accidents.

### 3.7- Transportation of equipment in trucks

- The equipment must be partially disassembled.
- To make a safe transport, straps must be used to attach the equipment to the truck body.

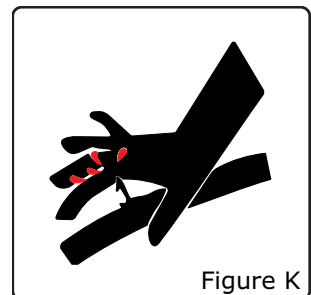
### 3.8- Avoid heating parts near the fluid lines

- Warming of fluid lines can create brittleness in the material, rupture and release of pressurized fluid, causing burns or injury (Figure J).



### 3.9- Avoid fluids under high pressure

- Do not handle hoses with pressurized fluids. Leaking fluids under pressure can penetrate the skin, causing serious injury (Figure K).
- Avoid danger by relieving hydraulic system pressure before disconnecting. Tighten all connections before applying pressure.
- In case of accident, seek immediate medical attention. Any fluid that penetrates the skin should be surgically removed within a few hours, not to cause gangrene.
- Only qualified personnel with this type of system can perform repairs. Consult the Vence Tudo Technical Assistance department or an authorized Dealer.



### 3.10- Emergency procedures

- Be prepared for any fire.
- In the event of a fire or any risk to the operator, the operator should leave the cab of the tractor as quickly as possible and seek a safe place.
- Keep emergency numbers like doctors, ambulance service, hospital and firemen near your phone.



### 3.11- Clean water reservoir

- This provides a reservoir of clean water for field cleaning in emergency situations when working with chemicals. If chemical contact occurs, clean and seek medical advice immediately.

- This water is unfit for human consumption (Figure L).

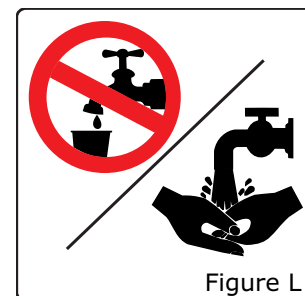


Figure L

### 3.12- Safe tire filling procedures

- Never fill a tire that is totally empty. If the tire has completely lost pressure, contact a specialist.
- Tire filling must always be carried out with a containment device (filling cage) (Figure M).

- To fill a tire, follow the instructions below:

- Use a sufficiently long safety tube fitted with a filling gun with double valve manometer and a graduated scale for pressure measurement.
- Stand at a safe distance from the tire tread and pull all other people close before filling the tire.
- Never fill the tire with more pressure than recommended.

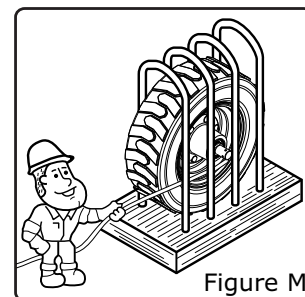


Figure M

### 3.13- Security lights and devices

Operate safely when transporting the implement on public roads, as permitted by traffic laws. To do this, follow the recommendations:

- Check the rearview mirrors frequently.
- Always indicate the direction you will go.
- Turn on the mars light positioned on top of the cab.
- Use the headlights, the flashing alert and the directional turn signals day and night.
- Observe traffic signs.
- Always keep alerts, headlights and lights clean so they can be seen. In addition, before driving, check that the headlights, lights, flashers and warnings are working correctly. If not, have the technician to perform the repairs.
- Non-slip steps and handrails prevent sliding on stairs.

**In addition to the safety features described here, the care and concern of a trained operator contribute to the safety of others who are close to the equipment.**

### 3.14- Safety precautions in equipment maintenance

- To operate the equipment, the operator must be properly trained, and have read all the instructions contained in this manual.
- Always keep the equipment in good working condition by performing the indicated maintenance within the recommended time limits.
- Be aware of any signs of wear, noise and any missing lubrication points. In case of failure of any component, look for the authorized Dealer or contact the Vence Tudo Parts Center to replace it with another original part.
- It is recommended that maintenance services are always performed by trained professionals, with all equipment mechanisms shut down.
- When performing maintenance under the equipment, use the stops to lock the hydraulic cylinders (Figure N).
- Whenever you need to perform any maintenance procedure, use the safety equipment indicated in this manual (Figure O).

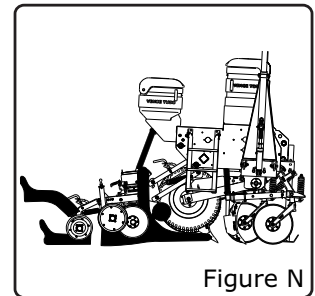


Figure N

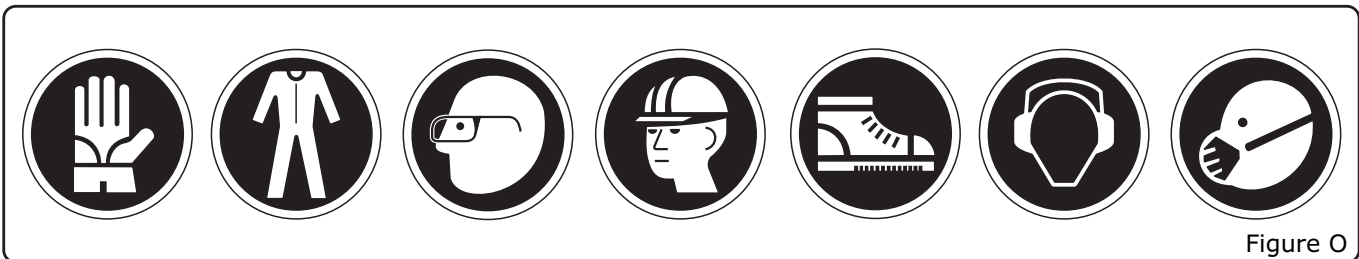


Figure O

- Check and periodically replace the filters and lubricants of the tractor and hydraulic system for maximum performance of the equipment and to prevent malfunctions. Use only filters and lubricants specified by the tractor manufacturer.



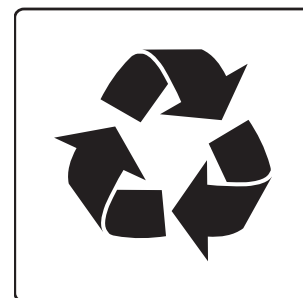
**Do not disconnect hydraulic hoses while they are under pressure! Use safety equipment such as gloves and protective goggles. Be careful when performing services of maintenance on hydraulic systems. Injuries caused by fluids should be treated by a doctor immediately.**

- Keep components such as hoses, fittings, and clamps in perfect condition to prevent leakage.
- During maintenance on the equipment, immediately wipe off any oil leakage.
- Do not smoke, or install any electrical appliance near flammable products, either in the equipment or in tanks.
- The lack of proper maintenance and operation by unprepared people can cause serious accidents, as well as damage to the equipment.

- If in doubt, seek technical assistance to perform maintenance.
- In case of a flat tire, empty it to remove the object causing the hole. Disassembly/assembly of the tire must be done by a qualified professional.
- Any change in rim geometry may cause the tire to burst. Therefore, dismantle the tire before doing any kind of repair on the rim.
- After using the equipment wash it thus increasing its useful life.
- Modifications or adaptations of the design may affect its service life and void its warranty. Therefore, they can only be done with the proper authorization of the Vence Tudo company.
- Keep the work area clean and dry.
- Before starting maintenance and adjustment procedures, lower the equipment to the ground, turn off all power sources (electric, hydraulic), turn off the tractor engine and operate the controls to relieve the pressure of the hydraulic system.
- Securely support any items of equipment that need to be lifted for servicing.

### 3.15- Proper waste disposal

- Disposing of waste improperly can threaten the environment.
- Use a leak-proof container when draining fluids.
- Do not pour waste on the ground, the sewer system and even in waterways.
- Check with your local environment or recycling center for proper waste disposal or recycling.



## 4. MAINTENANCE

In order for the resources of this equipment to be fully utilized, with greater durability and precision, take some essential care such as:

- Lubricate grease fittings every 8 hours of work (Figure P). Before lubricating clean the grease fittings with a clean cloth. If they are defective, they must be replaced.
- When planting is complete, thoroughly clean the equipment to remove any dirt that can trap moisture and cause oxidation.
- Paint all parts that are peeled or frayed.

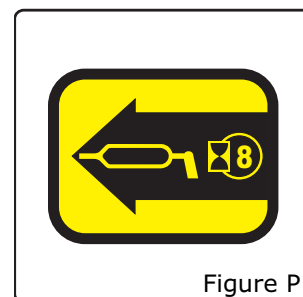
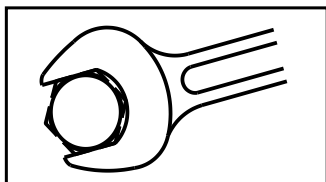


Figure P



## WARNING



**Retighten nuts and screws after the first 8 hours' work.**

## 5. GREASING

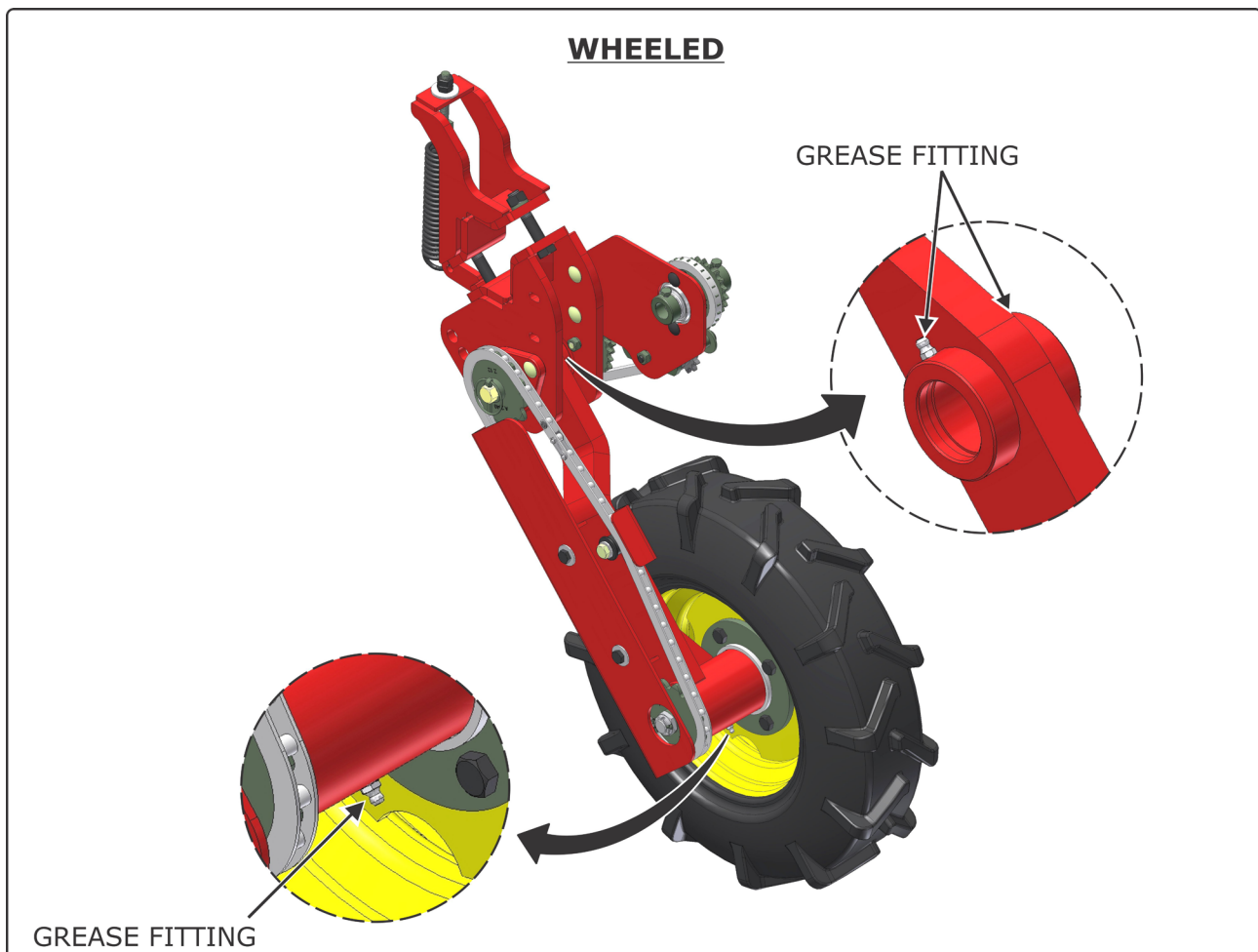
To reduce frictional wear between moving parts of the equipment, correct lubrication must be carried out, as follows:

- Ensure the quality of the lubricant as to its efficiency and purity, avoiding the use of products contaminated by water, earth, etc.
- Use medium consistency grease.
- Remove the old grease remnants around the joints.
- Wipe the grease fitting with a cloth before greasing and replace any defective parts.
- Insert a sufficient amount of new grease.

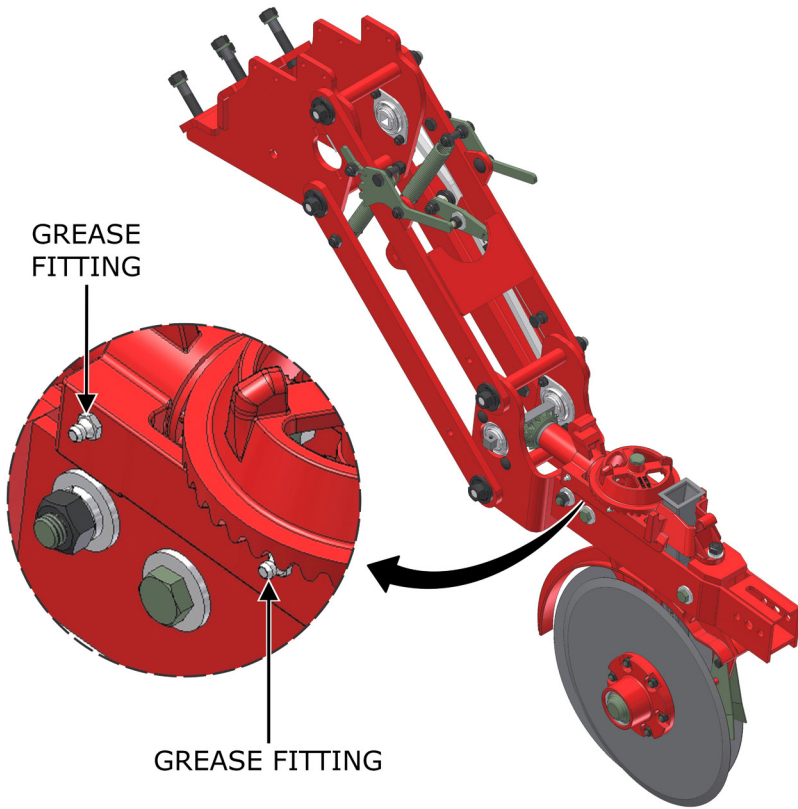


**Note carefully the lubrication gaps at the different points of equipment. Lubricate every 8 working hours.**

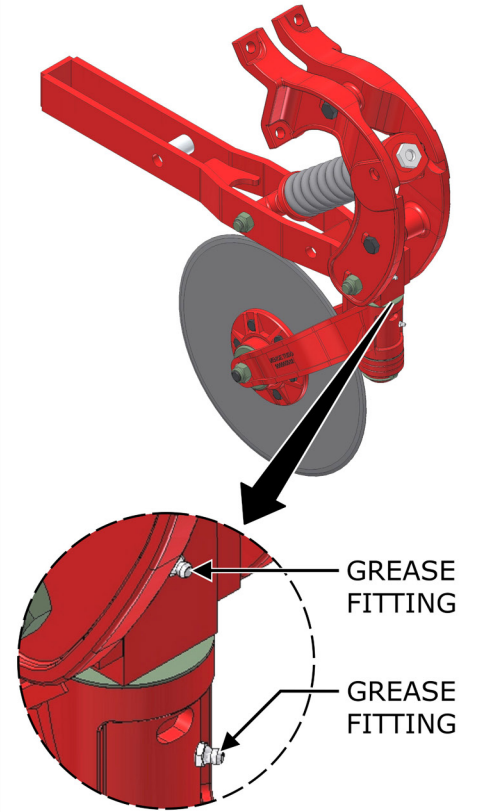
### 5.1- Grease points



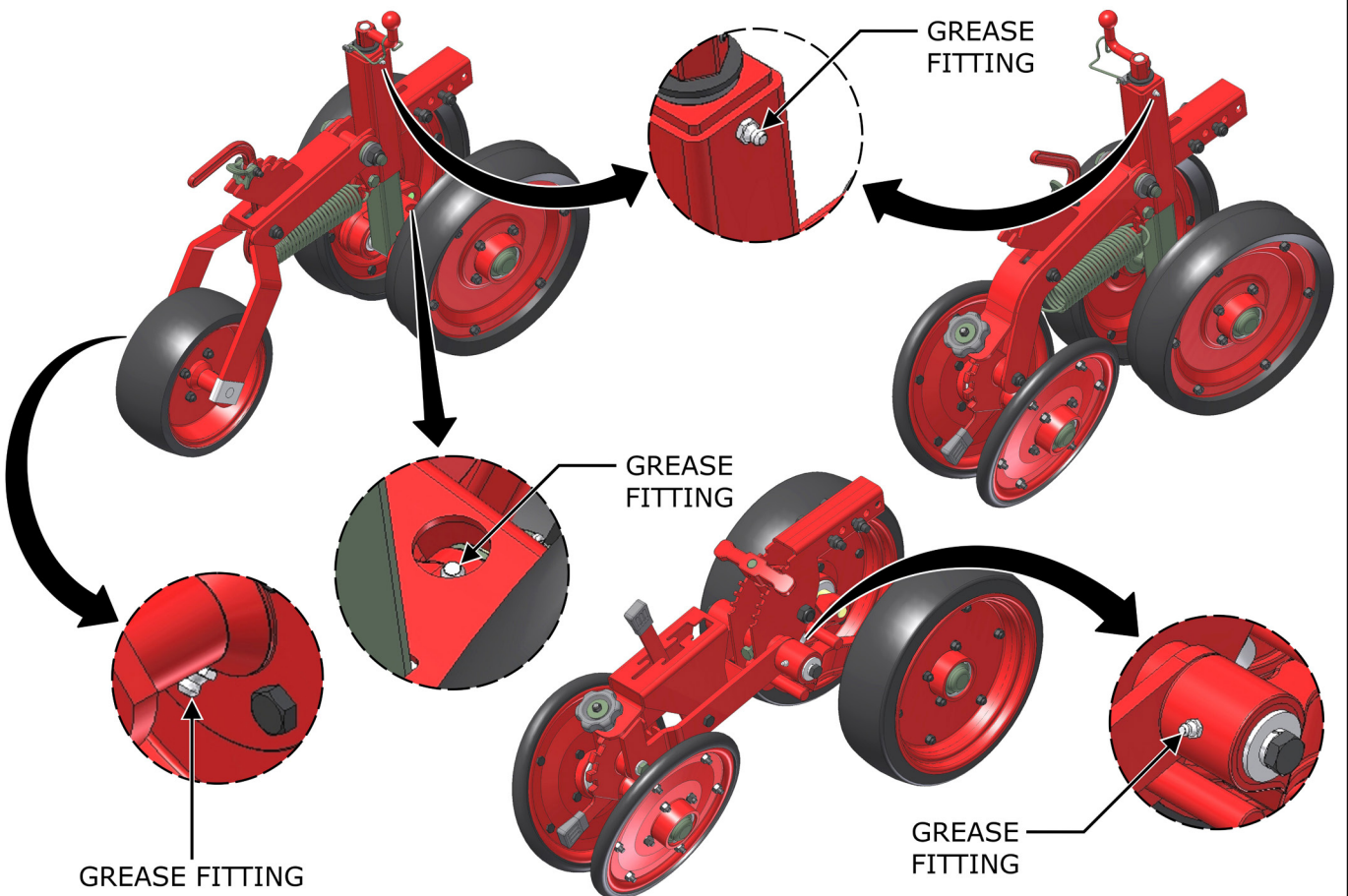
**SEED ROW**



**FERTILIZER ROW**



**DEPTH LIMITER AND COMPACTION**



6. TECHNICAL SPECIFICATIONS

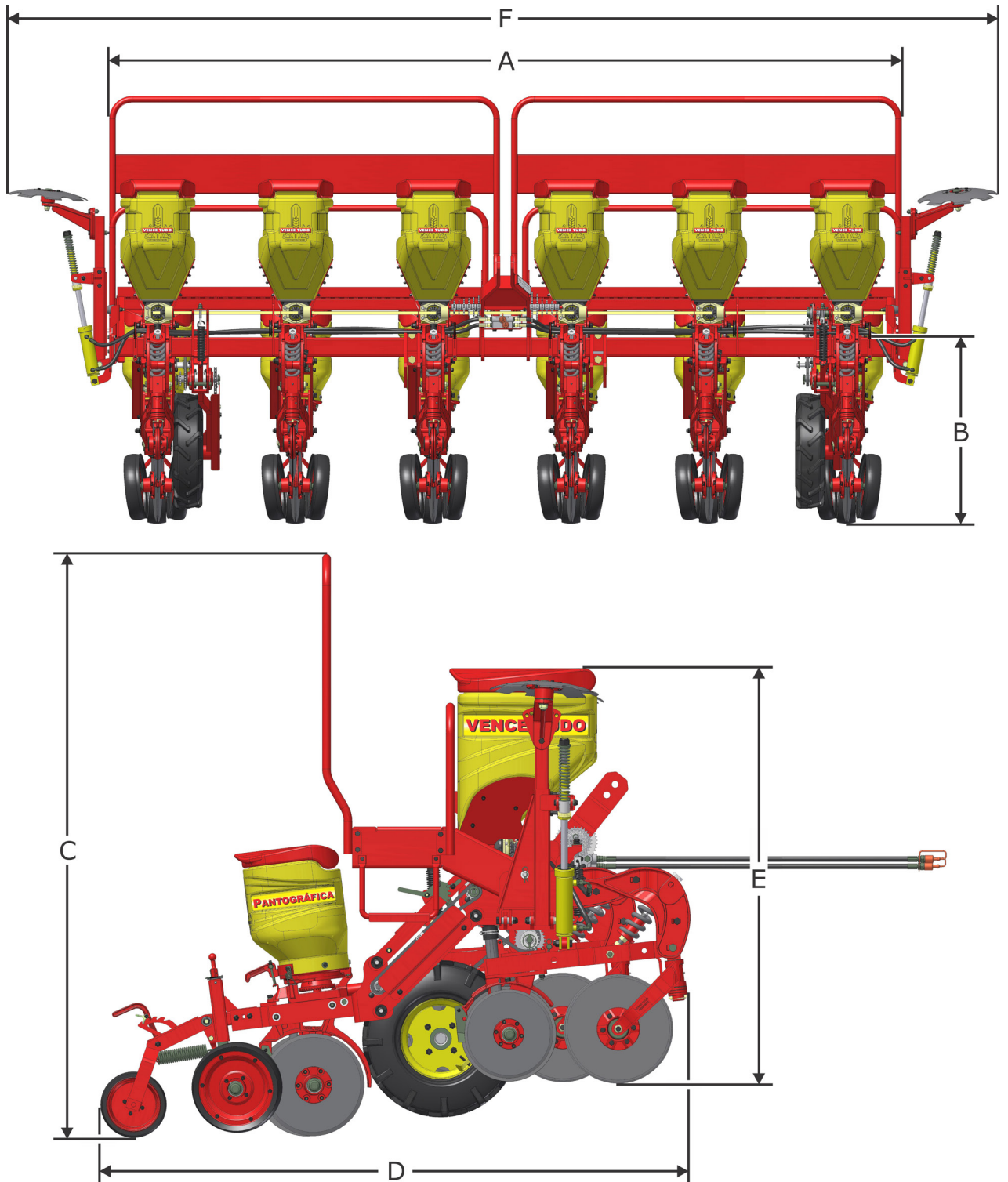
| TECHNICAL SPECIFICATIONS PA PANTOGRÁFICA Série Ouro |                   |            |              |            |              |            |              |            |              |                 |              |            |              |            |              |            |            |  |
|---|-------------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|-----------------|--------------|------------|--------------|------------|--------------|------------|------------|--|
| MODELS  |                   |            |              |            |              |            |              |            |              |                 |              |            |              |            |              |            |            |  |
| FEATURES  | PA 3000           |            |              | PA 5000    |              |            | PA 6000      |            |              | PA 6000 SPECIAL |              |            | PA 7000      |            |              |            |            |  |
|   | 3                 | 2          | 3            | 5          | 4            | 3          | 6            | 5          | 4            | 3               | 6            | 5          | 4            | 7          | 6            | 5          | 4          |  |
| NUMBER OF ROWS                                      | 45                | 45         | 45           | 45         | 50           | 65         | 45           | 45         | 65           | 85              | 70           | 60         | 75           | 45         | 45           | 60         | 75         |  |
| SPACING (cm)  | 60                | 50         | 70           | 55         | 55           | 70         | 50           | 50         | 70           | 90              | 70           | 70         | 80           |            | 50           | 65         | 80         |  |
|   | 65                | 55         | 75           | 60         | 60           | 75         | 55           | 55         | 75           | 90              |              |            |              |            | 55           | 70         | 85         |  |
|   | 70                | 60         | 80           | 60         | 80           | 80         | 60           | 60         | 80           |                 |              |            |              |            |              |            | 90         |  |
|   |                   | 65         | 85           |            |              | 85         |              |            |              |                 |              |            |              |            |              |            |            |  |
|   |                   | 70         | 90           |            |              | 90         |              |            |              |                 |              |            |              |            |              |            |            |  |
|   |                   | 75         |              |            |              |            |              |            |              |                 |              |            |              |            |              |            |            |  |
| SEED CAPACITY                                       | TOTAL             | ROW        | TOTAL        | ROW        | TOTAL        | ROW        | TOTAL        | ROW        | TOTAL        | ROW             | TOTAL        | ROW        | TOTAL        | ROW        | TOTAL        | ROW        | TOTAL      |  |
| FERTILIZER CAPACITY                                 | 75kg / 93L        | 25kg / 31L | 125kg / 155L | 25kg / 31L | 150kg / 186L | 25kg / 31L | 150kg / 186L | 25kg / 31L | 150kg / 186L | 25kg / 31L      | 150kg / 186L | 25kg / 31L | 175kg / 217L | 25kg / 31L | 175kg / 217L | 25kg / 31L | 25kg / 31L |  |
| APPROXIMATE WEIGHT (kg)                             | 790               | 620        | 1.200        | 1.030      | 860          | 1350       | 1180         | 1010       | 840          | 1490            | 1380         | 1210       | 1040         | 1710       | 1380         | 1210       | 1040       |  |
| POWER OF TRACTOR (cv)                               | 40 to 55          |            | 56 to 70     |            | 65 to 80     |            | 75 to 90     |            |              |                 |              |            |              |            |              |            |            |  |
| TIRES   | 500/6-12 / 18 psi |            |              |            |              |            |              |            |              |                 |              |            |              |            |              |            |            |  |

TABLE 1

**Note:**  
- Minimum spacing between wheel sets = 17.7 in.

## 7. FEATURES

### 7.1- Basic dimensions



| MODEL           | A    | B   | C    | D    | E    | F    |
|-----------------|------|-----|------|------|------|------|
| PA 3000         | 1842 | 939 | 2165 | 1976 | 1544 | -    |
| PA 5000         | 2242 | 939 | 2165 | 1976 | 1544 | -    |
| PA 6000         | 2842 | 939 | 2165 | 1976 | 1544 | 3840 |
| PA 6000 SPECIAL | 4022 | 939 | 2165 | 1976 | 1544 | 5020 |
| PA 7000         | 3242 | 939 | 2165 | 1976 | 1544 | -    |

Dimensions in mm.

## 7.2- General features

**COUPLING:** Through the three-point tractor hitch.

**FRAME:** Monoblock type.

**WHEELSETS** It consists of two wheels, with independent turning. They have flanged rims, fixed by four bolts, swivel wheel sets and special tires model 500/6-12 ".

**FERTILIZER HOPPER:** They are individual to each planting unit and made of low density polyethylene.

**SEED HOPPER:** They are individual to each planting unit and made of low density polyethylene.

**FERTILIZER METERING DEVICE:** Mechanical meter auger type or fertisystem.

**SEED METERING DEVICE:** Horizontal mechanical meter, consisting of metal plate and perforated horizontal discs.

**TRANSMISSION RATIO:** It is obtained by combining the transmission sprockets.

**STRAW CUTTING SYSTEM:** Vertical cutting disc, with lateral oscillation and pressure by means of a helical spring pre-tensioned by threaded element.

**DEPOSITOR AND FERTILIZER CONDUCTOR MECHANISM:** Knife furrow with replaceable tip and safety fuse, with adjustment for different depths. Its working pressure is obtained through the action of helical springs.

**DEPOSITION OF SEEDS:** The seed deposition system consists of two offset "V" mounted discs with equal diameters and curved conductor. Its working pressure is obtained through the action of helical springs.

**LIMITER MECHANISM (OPTIONAL):** Depth limiting wheel with flexible rubber coating. This is optional, and may be:

- Fixed "V" limiter with "V" compactor;
- Independent "V" limiter with "V" compactor;
- Fixed "V" limiter and third wheel;
- Independent "V" limiter and third wheel;
- Premium limiter.

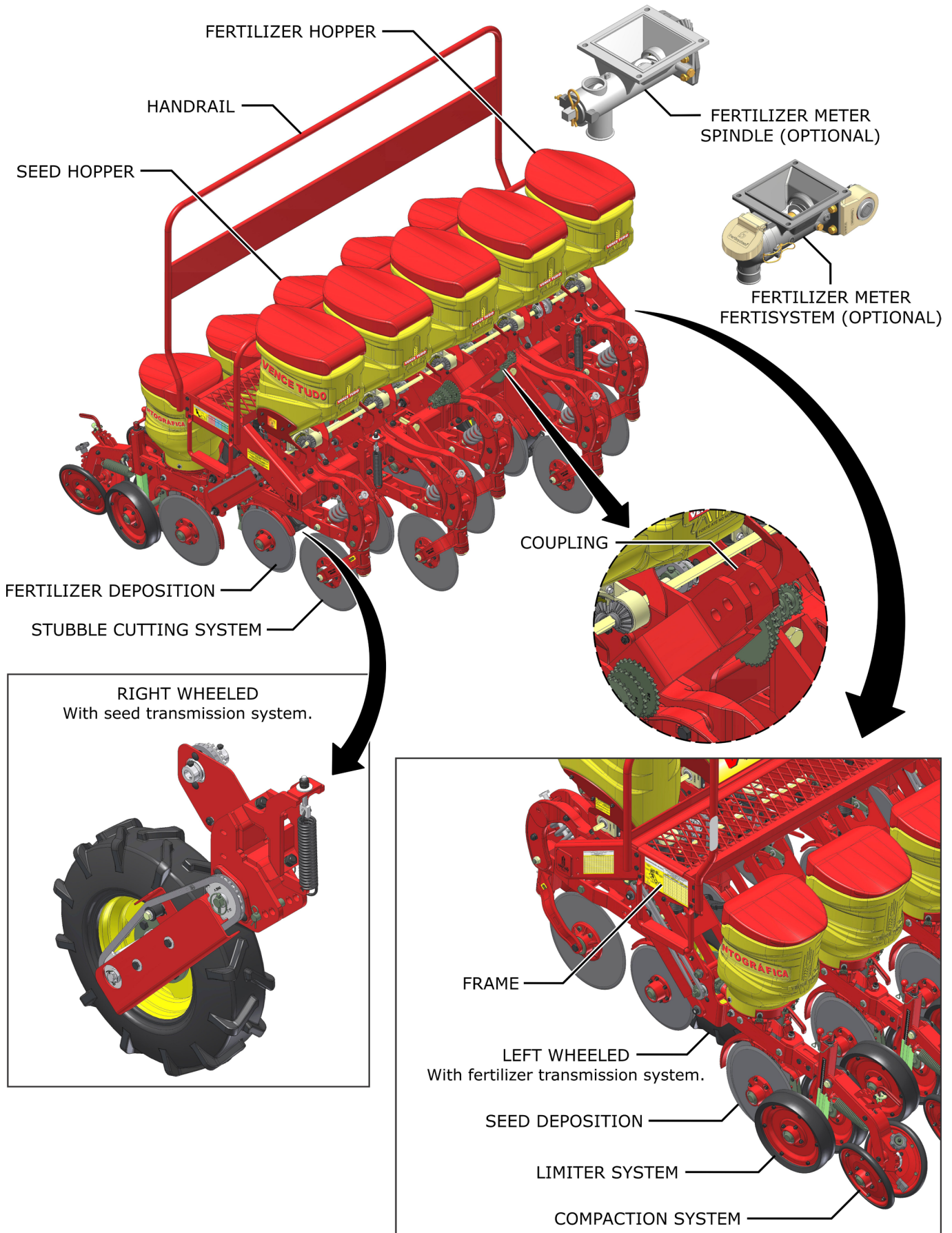


## 8. GENERAL INFORMATION

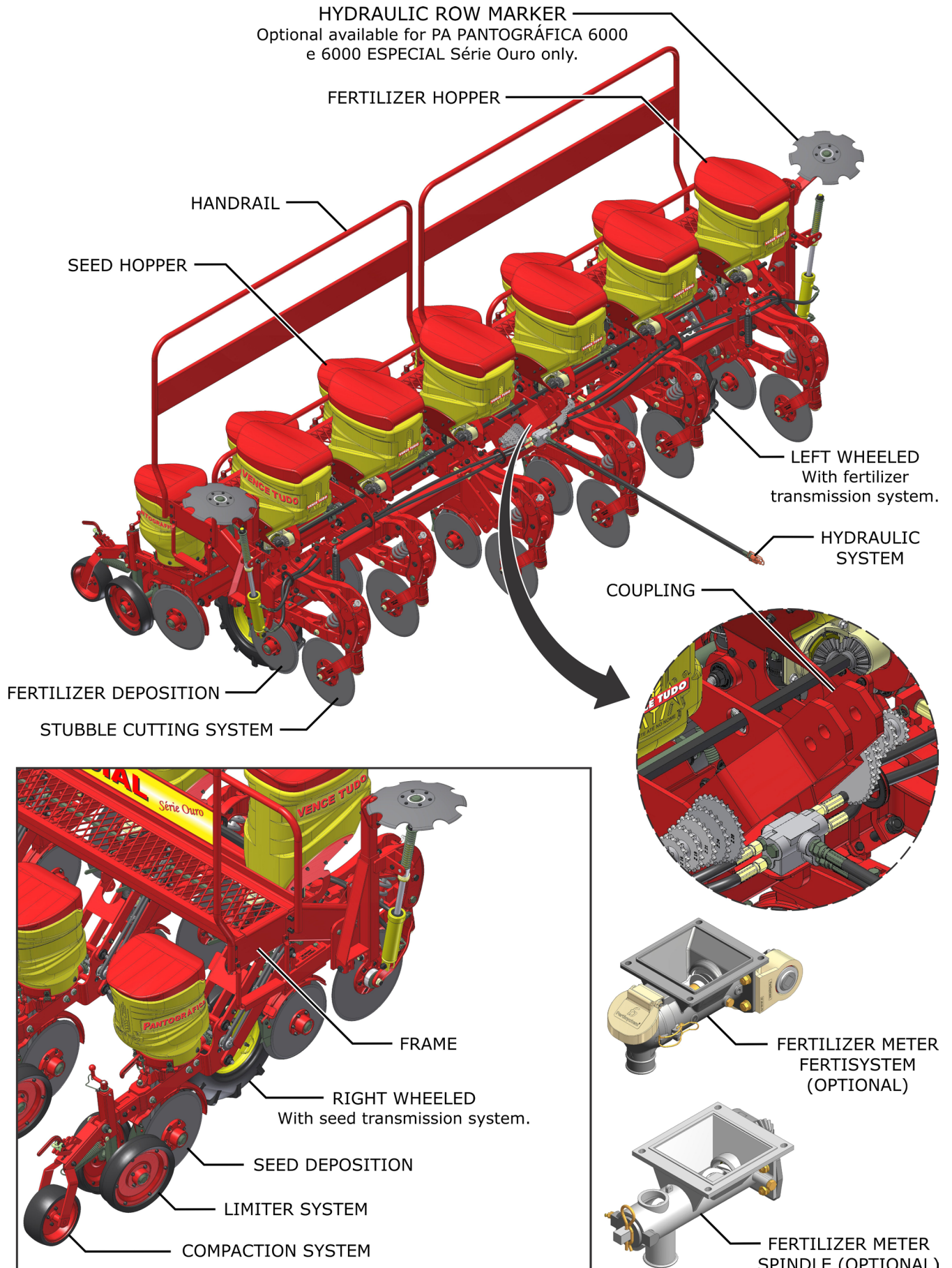
- 1-** *At the time of receipt of your PA PANTOGRAPHIC seeder, it is of utmost importance to check the condition of the product and box of additional parts;*
- 2-** *The right and left side identifications are considered, taking into account the observation of the machine from back to front;*
- 3-** *When removing any assembly for the placement of another, care should always be taken to separate the removed parts and their respective components or parts. This is for them not to be used on other machines or other equipment of your own;*
- 4-** *In this manual, only illustrative figures are used for explanations and demonstrations. The images may not correspond exactly to the product, which may be changed without prior notice;*
- 5-** *The figures represented in this manual refer to soybean crops, but the operations correspond for other crops, such as corn, sorghum and others;*
- 6-** *The layout of the planting rows vary according to the model of the seeder. Make sure you are installing or maintaining the correct model;*
- 7-** *If you have any questions regarding assembly or adjustments, please contact our **service department**.*

## 9. COMPONENTS IDENTIFICATION

### 9.1- 3000 / 5000 / 6000 / 6000 SPECIAL and 7000 PA PANTOGRÁFICA Série Ouro



### 9.2- 6000 / 6000 SPECIAL and 7000 PA PANTOGRÁFICA Série Ouro



## 10. LOCATION OF STICKERS IN THE EQUIPMENT

### 10.1- Front view

**VENCE TUDO**

**PANTOGRÁFICA**

Birthday commemorative sticker

**CUIDADO/CAUTION/PRECAUCION**

ANTES DE OPERAR COM ESTE EQUIPAMENTO, LEIA ATENTAMENTE O MANUAL DE INSTRUÇÕES.

BEFORE OPERATING WITH THIS EQUIPMENT, READ CAREFULLY THE TECHNICAL MANUAL OF INSTRUCTIONS.

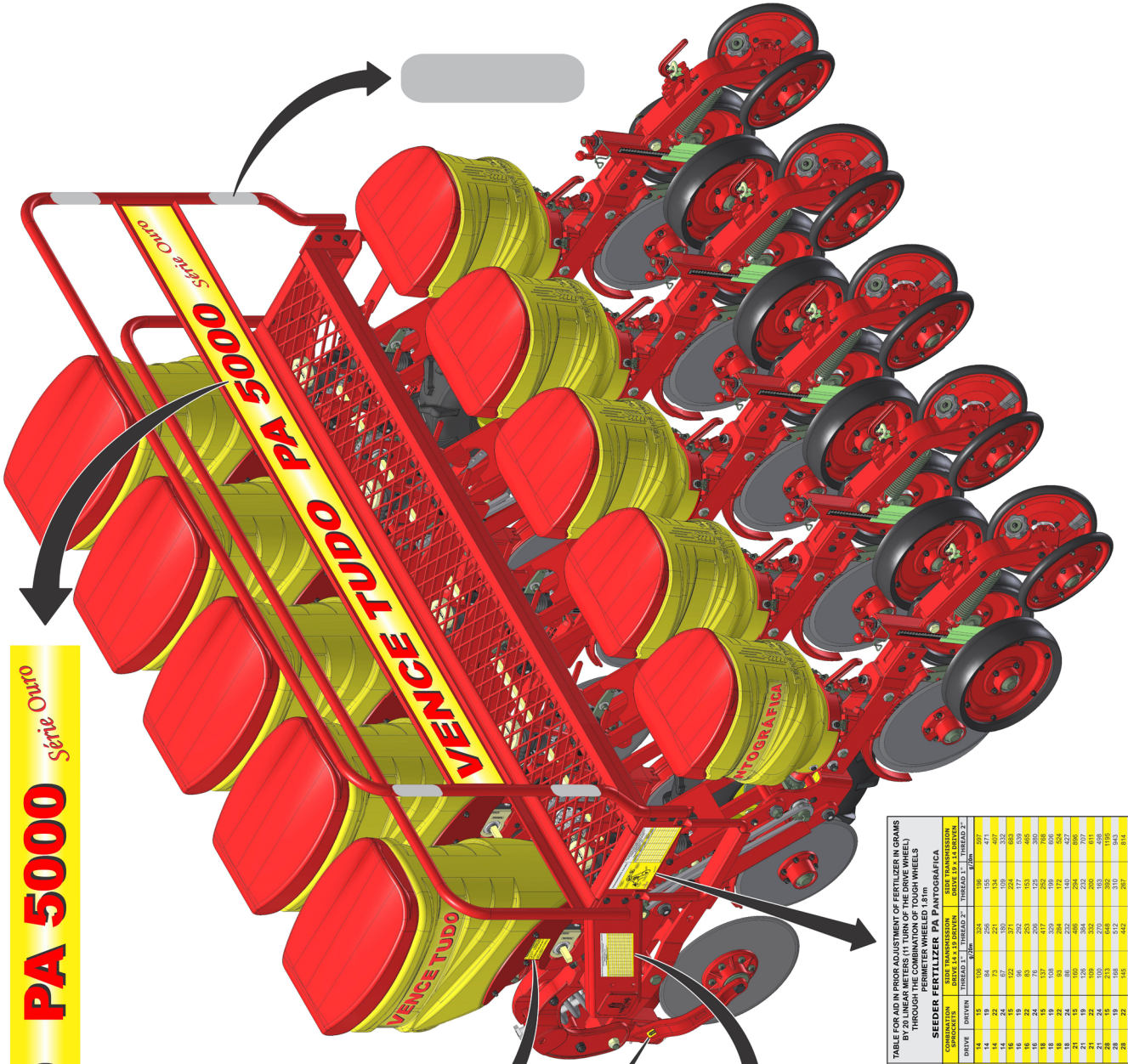
ANTES DE FUNCIONAR CON ESTE EQUIPO, LEA ATENTAMENTE EL MANUAL DE INSTRUCCIONES TÉCNICAS Y OPERACIONES.

AID TABLE IN PRIOR ADJUSTMENT FOR SEED DISTRIBUTION

Roller Perimeter: 1.83m

| SEED TRANSMISSION | SEED | CORN - 38 HOLES |     |        |      | BEANS - 63 HOLES |      |        |    | SOYA - 90 HOLES |     |        |    |      |      |
|-------------------|------|-----------------|-----|--------|------|------------------|------|--------|----|-----------------|-----|--------|----|------|------|
|                   |      | DRIVEN          |     | DRIVEN |      | DRIVEN           |      | DRIVEN |    | DRIVEN          |     | DRIVEN |    |      |      |
|                   |      | 14              | 16  | 18     | 20   | 14               | 16   | 18     | 20 | 14              | 16  | 18     | 20 |      |      |
|                   | 14   | 3,4             | 2,7 | 7,6    | 6,0  | 11,1             | 8,8  | 19     | 24 | 1,9             | 2,4 | 14     | 16 | 17,5 | 20,0 |
|                   | 16   | 3,9             | 3,1 | 6,7    | 6,9  | 12,6             | 10,0 | 19     | 24 | 2,4             | 3,0 | 14     | 16 | 17,5 | 20,0 |
|                   | 18   | 4,4             | 3,5 | 5,7    | 5,7  | 11,3             | 9,0  | 19     | 24 | 2,4             | 3,0 | 14     | 16 | 17,5 | 20,0 |
|                   | 20   | 4,9             | 3,9 | 5,2    | 4,7  | 10,0             | 8,0  | 19     | 24 | 2,4             | 3,0 | 14     | 16 | 17,5 | 20,0 |
|                   | 28   | 6,8             | 5,4 | 15,2   | 12,0 | 22,1             | 17,5 | 19     | 24 | 2,4             | 3,0 | 14     | 16 | 17,5 | 20,0 |
|                   | 38   | 9,3             | 7,3 | 20,6   | 15,3 | 25,3             | 20,0 | 19     | 24 | 2,4             | 3,0 | 14     | 16 | 17,5 | 20,0 |

10.2- Rear view



**VENCE TUDO PA 5000** Série Ouro

**ATENÇÃO/ATTENTION**  
 REAPORTE PORCAS E PARAFUSOS A 5 PRIMEIRAS HORAS DE TRABALHO.  
 IT RETIGHTENS NUTS AND SCREWS AFTER FIRST THE 8 WORKING HOURS.  
 VUELVE A APRETAR LAS TUERCAS Y TORNILLOS DESPUES DE LAS PRIMERAS 8 HORAS DE TRABAJO.



TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN KG / Ha x SPACING BETWEEN THE FIRST METERS THROUGH PERMETER WHEELED 181m

SEEDER FERTILIZER PA PANTOGRÁFICA

| kg / Ha | LINE SPACING |     |     |     |     |     |     |      |
|---------|--------------|-----|-----|-----|-----|-----|-----|------|
|         | 05           | 10  | 15  | 20  | 25  | 30  | 35  | 40   |
| 50      | 42           | 84  | 126 | 168 | 210 | 252 | 294 | 336  |
| 60      | 50           | 100 | 150 | 200 | 250 | 300 | 350 | 400  |
| 70      | 58           | 116 | 174 | 232 | 290 | 348 | 406 | 464  |
| 80      | 66           | 132 | 198 | 264 | 324 | 384 | 444 | 504  |
| 90      | 74           | 148 | 222 | 294 | 354 | 414 | 474 | 534  |
| 100     | 82           | 164 | 244 | 316 | 376 | 436 | 496 | 556  |
| 110     | 90           | 180 | 270 | 336 | 396 | 456 | 516 | 576  |
| 120     | 98           | 196 | 294 | 360 | 420 | 480 | 540 | 600  |
| 130     | 106          | 212 | 316 | 384 | 444 | 504 | 564 | 624  |
| 140     | 114          | 228 | 336 | 408 | 468 | 528 | 588 | 648  |
| 150     | 122          | 244 | 360 | 432 | 492 | 552 | 612 | 672  |
| 160     | 130          | 260 | 384 | 456 | 516 | 576 | 636 | 696  |
| 170     | 138          | 276 | 408 | 480 | 540 | 600 | 660 | 720  |
| 180     | 146          | 292 | 432 | 504 | 564 | 624 | 684 | 744  |
| 190     | 154          | 308 | 456 | 528 | 588 | 648 | 708 | 768  |
| 200     | 162          | 324 | 480 | 552 | 612 | 672 | 732 | 792  |
| 210     | 170          | 340 | 504 | 576 | 636 | 696 | 756 | 816  |
| 220     | 178          | 356 | 528 | 600 | 660 | 720 | 780 | 840  |
| 230     | 186          | 372 | 552 | 624 | 684 | 744 | 804 | 864  |
| 240     | 194          | 388 | 576 | 648 | 708 | 768 | 828 | 888  |
| 250     | 202          | 404 | 600 | 672 | 732 | 792 | 852 | 912  |
| 260     | 210          | 420 | 624 | 696 | 756 | 816 | 876 | 936  |
| 270     | 218          | 436 | 648 | 720 | 780 | 840 | 900 | 960  |
| 280     | 226          | 452 | 672 | 744 | 804 | 864 | 924 | 984  |
| 290     | 234          | 468 | 696 | 768 | 828 | 888 | 948 | 1008 |
| 300     | 242          | 484 | 720 | 792 | 852 | 912 | 972 | 1032 |

NOTE: For the combination of sprockets and thread pitch option (1, 2, 3), see Table 2.

**FERTILIZER TRANSMISSION**

TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN GRAMS BY 20 LINEAR METERS (1<sup>st</sup> TURN OF THE DRIVE WHEEL) THROUGH PERMETER WHEELED 181m

SEEDER FERTILIZER PA PANTOGRÁFICA

| COMBINATION | SIDE TRANSMISSION |          | DRIVER TRANSMISSION |          |     |
|-------------|-------------------|----------|---------------------|----------|-----|
|             | THREAD 1          | THREAD 2 | THREAD 1            | THREAD 2 |     |
| 14          | 15                | 100      | 204                 | 106      | 507 |
| 14          | 19                | 84       | 250                 | 150      | 471 |
| 14          | 24                | 67       | 300                 | 190      | 352 |
| 16          | 18                | 96       | 202                 | 177      | 539 |
| 16          | 22                | 83       | 252                 | 153      | 465 |
| 16          | 28                | 65       | 312                 | 202      | 370 |
| 18          | 18                | 115      | 137                 | 252      | 700 |
| 18          | 22                | 100      | 204                 | 172      | 504 |
| 18          | 24                | 90       | 228                 | 160      | 457 |
| 18          | 28                | 72       | 282                 | 130      | 352 |
| 21          | 18                | 126      | 104                 | 252      | 707 |
| 21          | 24                | 100      | 270                 | 150      | 498 |
| 24          | 18                | 162      | 72                  | 312      | 505 |
| 24          | 22                | 144      | 96                  | 270      | 465 |
| 24          | 28                | 108      | 132                 | 204      | 352 |
| 24          | 32                | 90       | 162                 | 180      | 270 |

NOTE: To obtain kg / Ha x spacing, use the combination of sprockets with the corresponding gear from the diagram in Table 1.



## 11. PREPARATION FOR PLANTING

### 11.1- Tractor

It is recommended to use ballasts in sufficient quantities to perform the planting with better efficiency. The amount should be in relation to the weight of the seeder and the slope of the terrain.

#### 11.1.1- Coupling the seeder - tractor

When coupling or uncoupling the seeder to the tractor, do this in a flat, firm place, as follows:

- 1- Move the tractor at idle speed towards the seeder and be careful to stop the tractor (braking);
- 2- When approaching, use the height control lever of the hydraulic arms, leaving them as close as possible to the three-point hitch of the seeder;
- 3- Attach the lower left arm (A) (fig. 01), not adjustable, on the coupling (G) (fig. 02) and secure it with the safety pin and latch;
- 4- Attach the top link arm (D) (fig. 01) at point (F) (fig. 02), and use the safety pin and latch to lock it;
- 5- Attach the lower right arm (B) (fig. 01), adjustable, on the coupling (H) (fig. 02) and secure it with the safety pin and latch;
- 6- After engaging the seeder, center it in relation to the middle of the tractor by using the stabilizers (C) (fig. 01) of lower arms (A and B) for alignment, checking their distance from the tractor wheel.

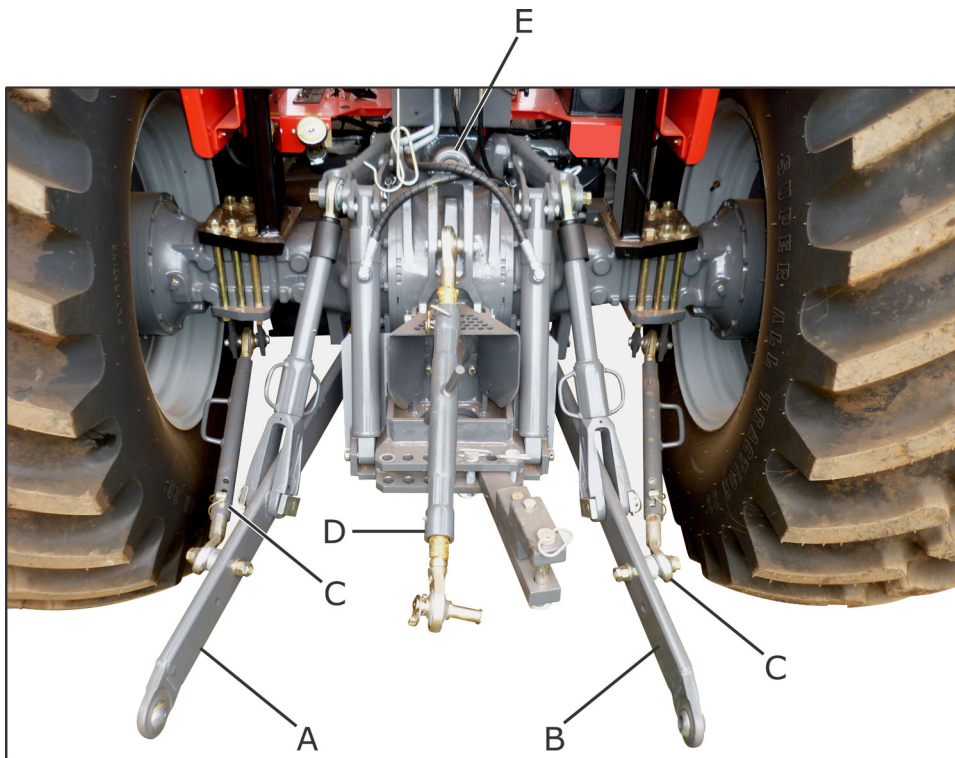


fig. 01

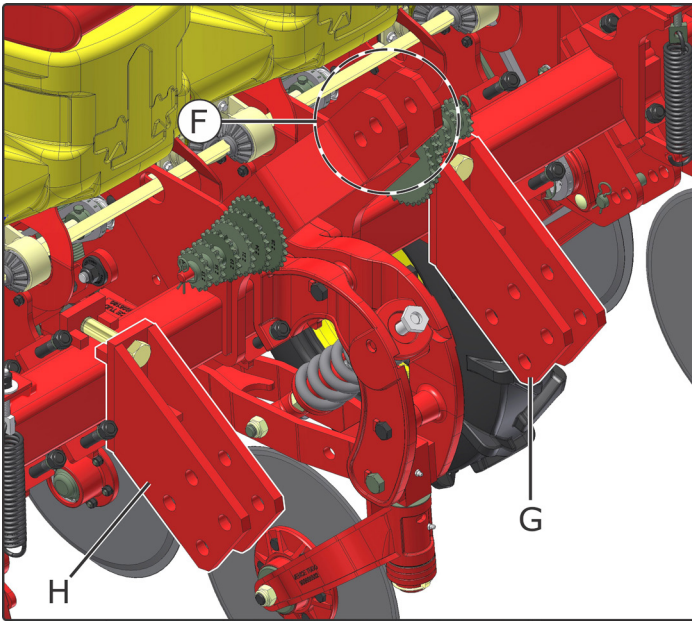


fig. 02

**IMPORTANT**

Check the top link arm hitch position (D) (fig. 01) on the tractor so that the relief valve is not actuated. Make sure the top link arm (D) is always attached in the opposite position to the relief valve, so that there is no wear on the tractor's hydraulic system.

**Note:** The location of the relief valve differs for each tractor model.

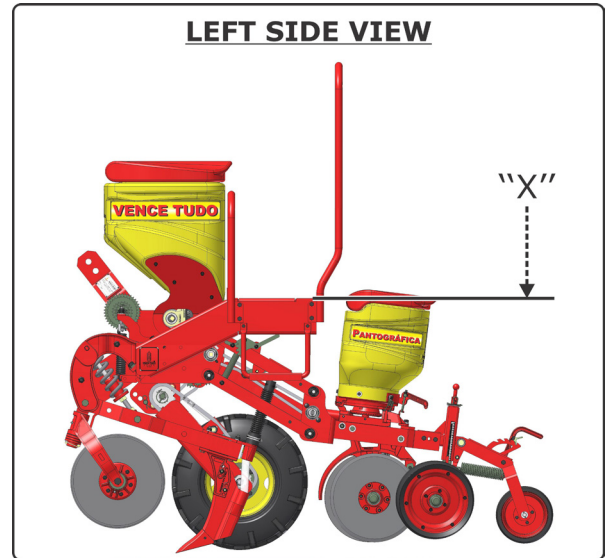


fig. 03

**11.1.2- Leveling of the seeder**

Make the transverse and longitudinal leveling of the seeder as follows:

- **Transverse or Side Leveling:** Rotate the thread (A) (fig. 04) of the tractor right hand arm (B) until centering;
- **Longitudinal Leveling:** Rotate the top link arm (C) (fig. 04) until you reach the leveling of arrow ("X") (fig. 03).

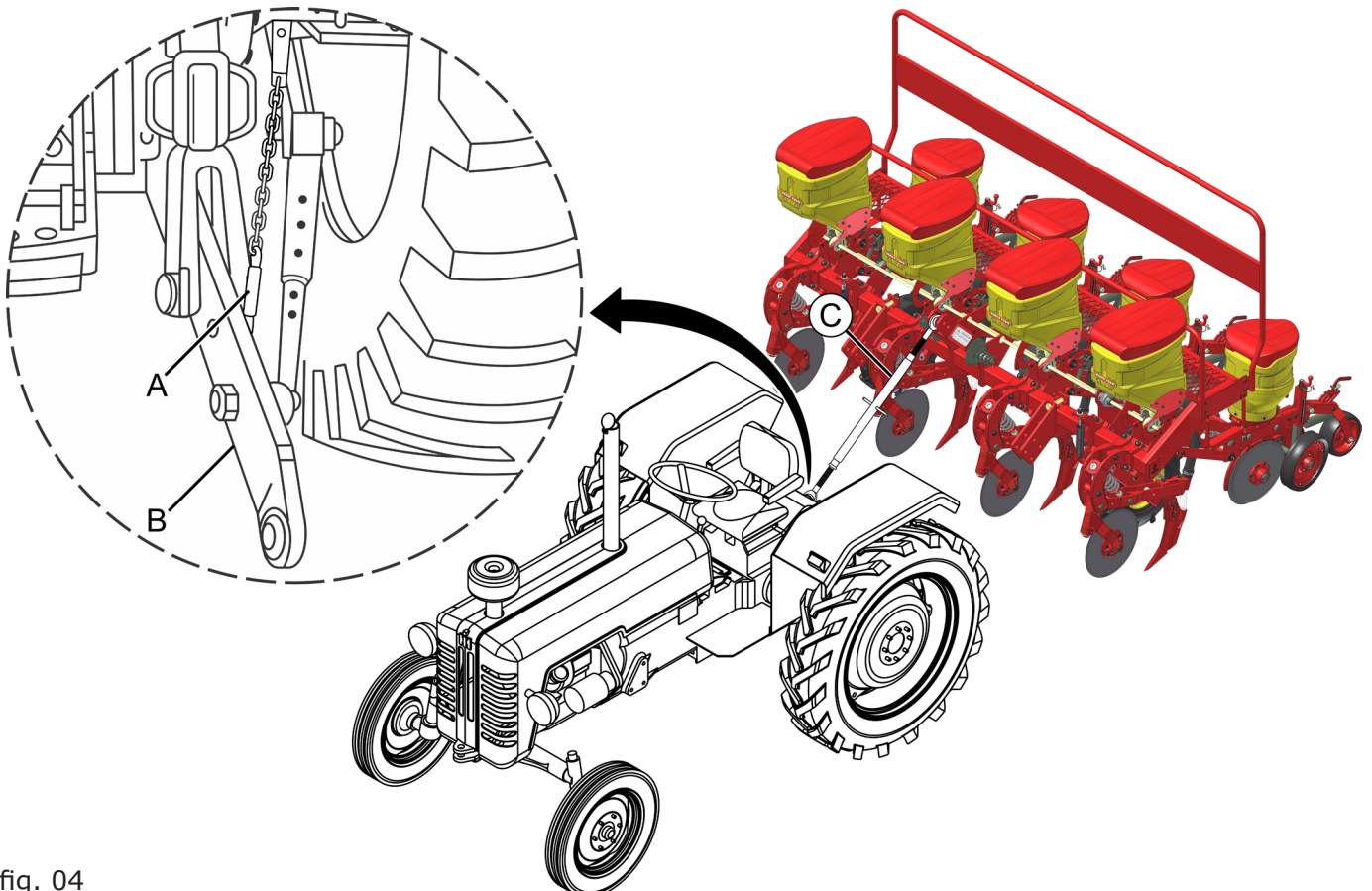


fig. 04

## 11.2- Recommendations before starting the planting operation

Read and follow the instructions in the **operating manual** correctly;

Before starting the operation, completely clean the seeder, check that all mechanisms are working and tighten all fasteners.

Regarding the **planting rows**, make sure that all the fuse bolts are in good conditions. Check the **internal cleaners** of the double discs if they are in perfect condition and adjusted correctly. Also observe the **tips of the furrowing knives**. In case of excessive wear, replace them.

Always check the condition of the springs, replacing them in case of breakage and lack of tension. Do not attempt to repair a weak spring as this could cause a serious accident. During the period when the seeder is not in use, leave the springs distended.

Loose or broken **bolts, nuts and pins** may loosen a high-cost part, which will probably bend or break damaging other components of the seeder. Due to these causes, replace and retighten them as necessary.

Keep the **drive chains** aligned and always with proper working tension, which corresponds to an oscillation equal to the width of the chain. Never add a new link in a used chain. Do not use a new chain on a used sprocket.

Check the alignment of the **sprockets** keeping them free of impurities. Lubricate them to prevent dry running.

Lubricate the **grease fittings** by wiping them with a cloth to prevent dirt from clogging the duct. If they are defective, replace them.

Before starting the operation, perform a **general tightening** on all components, nuts and bolts. Check the placement of pins, cotter pins and locking pins. After the first few hours of work repeat the **re-tightening** operation.

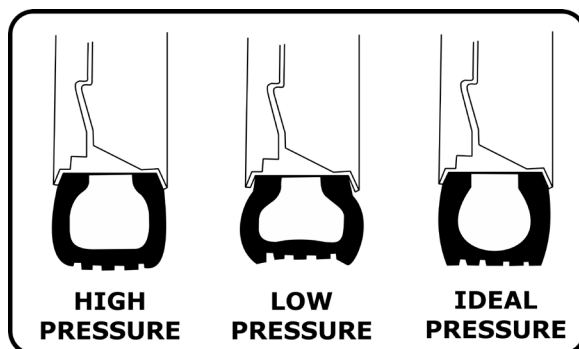


**Do not allow children or persons not involved in the operation to get close to work during operations.**

**Make sure the seeder is in the correct position and turn off the tractor engine. This is critical to your safety.**

### 11.2.1- Tire pressure

The use of optimum working pressure allows perfect tire-to-ground contact, providing essential flexibility for long tire life. The use of low or high pressure can cause serious and irreversible damage to the tires. The recommended pressure for tires **500/6-12 from 18 to 20 psi**, according to the manufacturer for normal conditions of use.



### 11.2.2- Greasing

Make sure the seeder is properly lubricated, as the efficiency, conservation and productivity of the seeder depend directly on this procedure.

## 12. OPERATIONS

### 12.1- Assemblies for planting soybean and corn

The assemblies are composed of a support, in which the plastic reservoirs with the horizontal seed distributor mechanism are fixed, and the drive system of the assembly. The assembly is secured by means of bolts and nuts.



For corn planting, isolate by not using the seed distributor assemblies with intermediate rows hoppers (unused reservoirs), and remove the distributing discs from the planting unit.

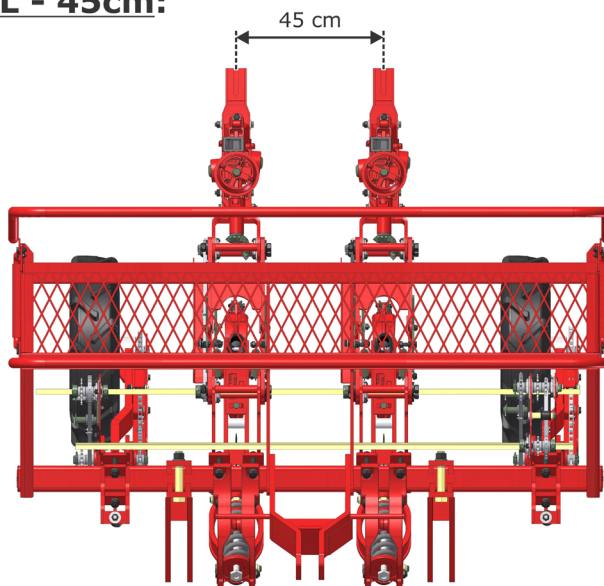
## 12.2- Spacing between planting rows

The **PA PANTOGRÁFICA Série Ouro** seeders leave the factory with minimum spacing according to the number of rows requested, making it possible to opt for other spacings according to the model of the seeder, with inclusion or exclusion of rows, according to the crop.

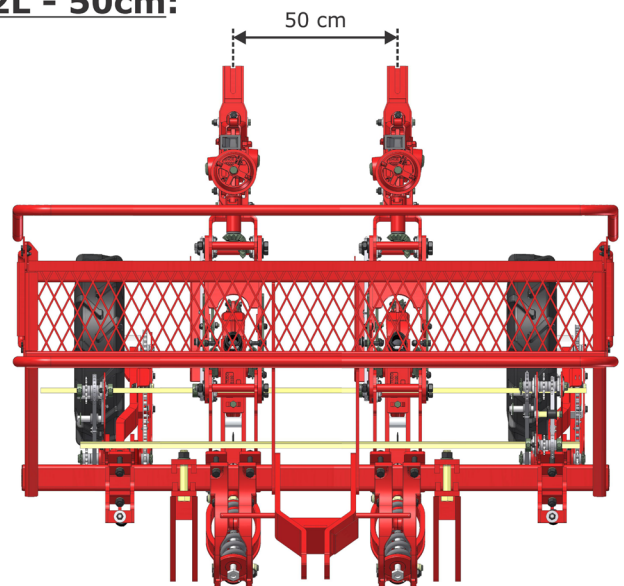
Check below the possible spacing options and their arrangement in the frame according to the model and number of rows:

- **3000 PA PANTOGRÁFICA Série Ouro**

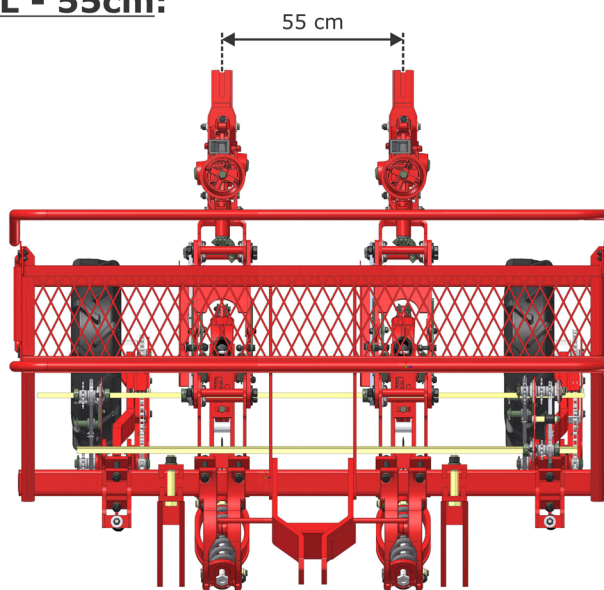
**2L - 45cm:**



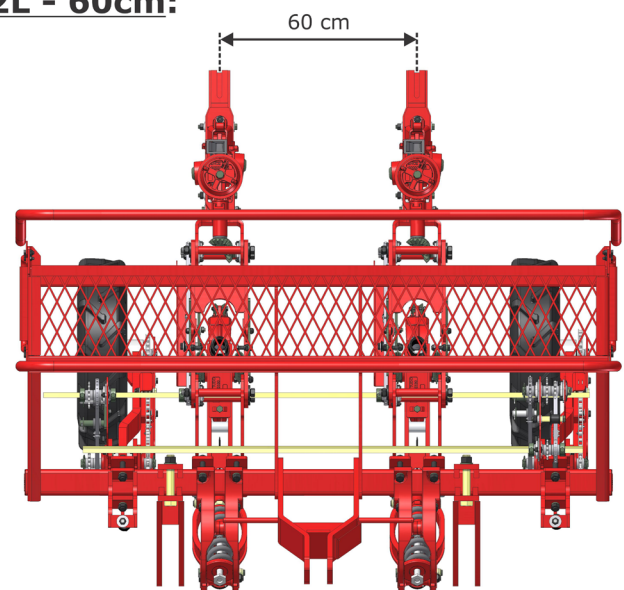
**2L - 50cm:**



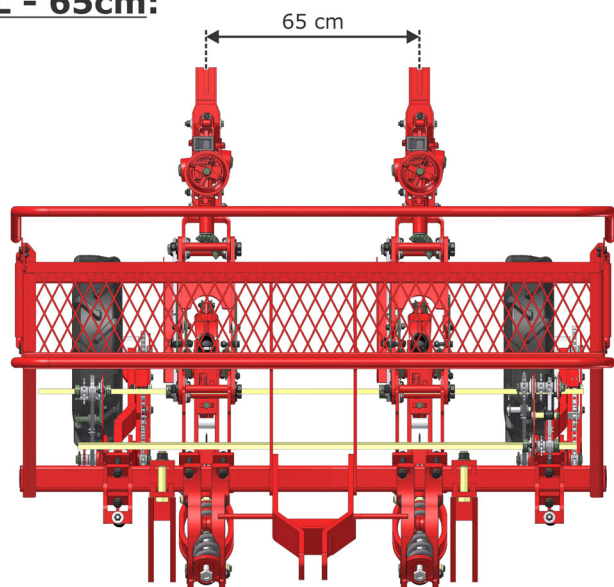
**2L - 55cm:**



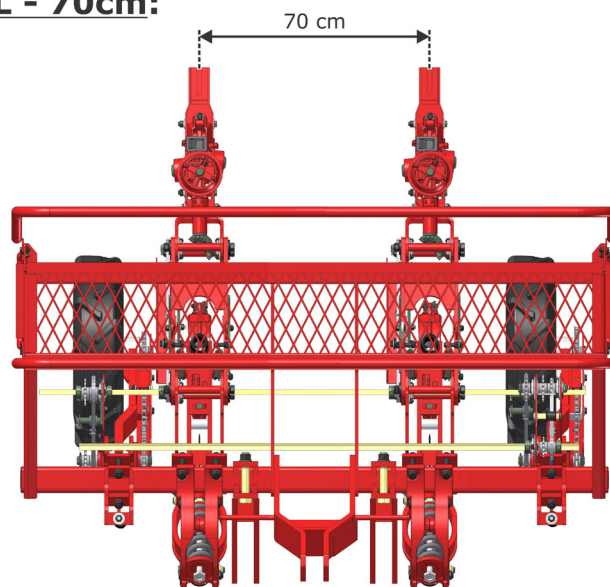
**2L - 60cm:**



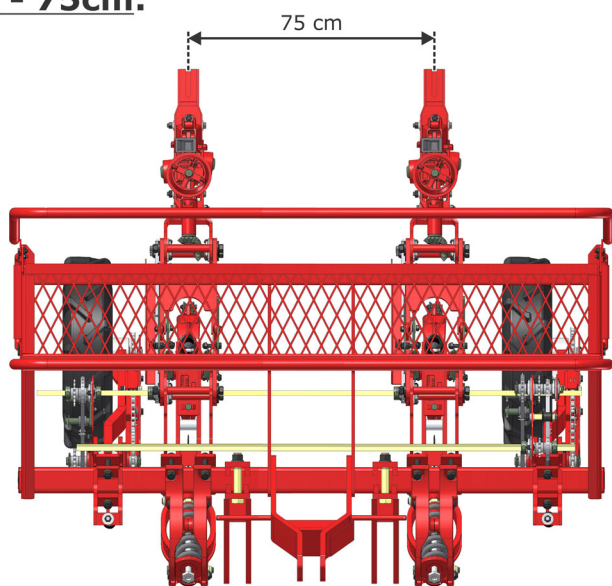
**2L - 65cm:**



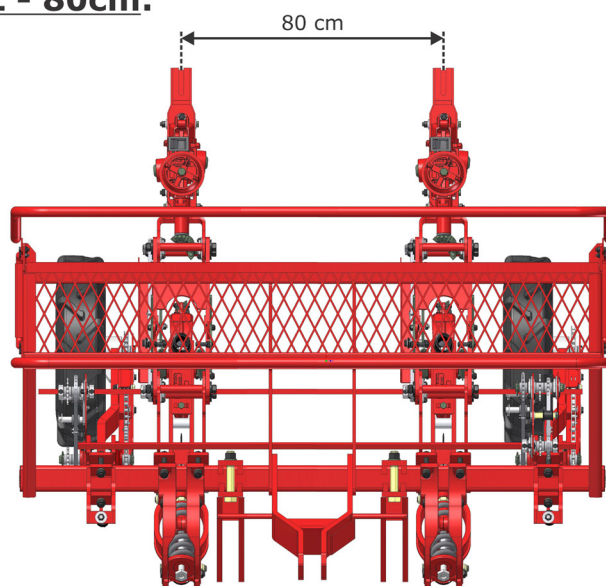
**2L - 70cm:**



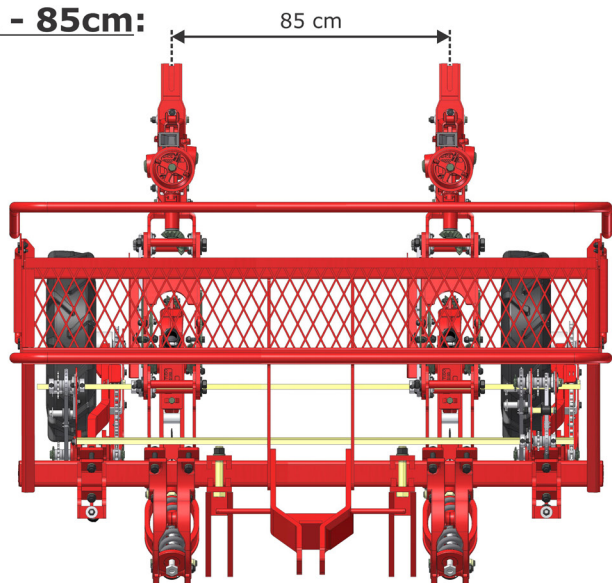
**2L - 75cm:**



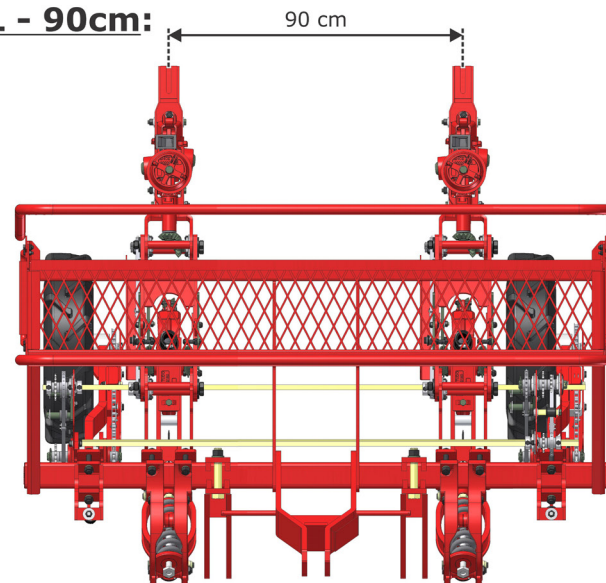
**2L - 80cm:**



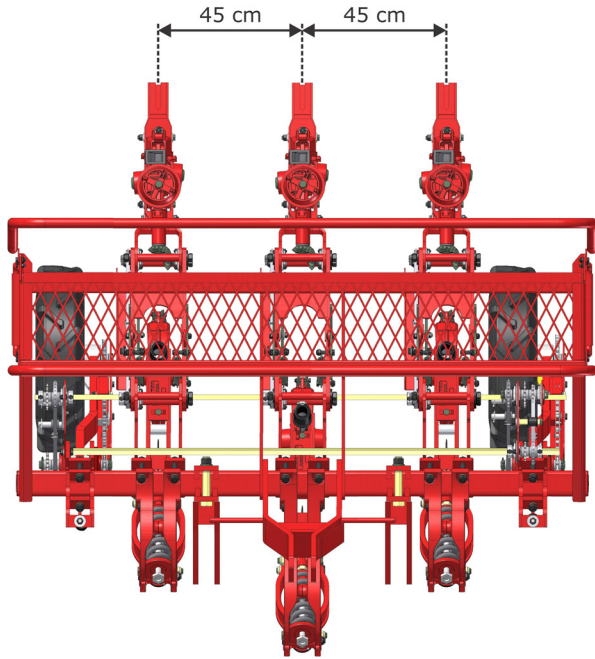
**2L - 85cm:**



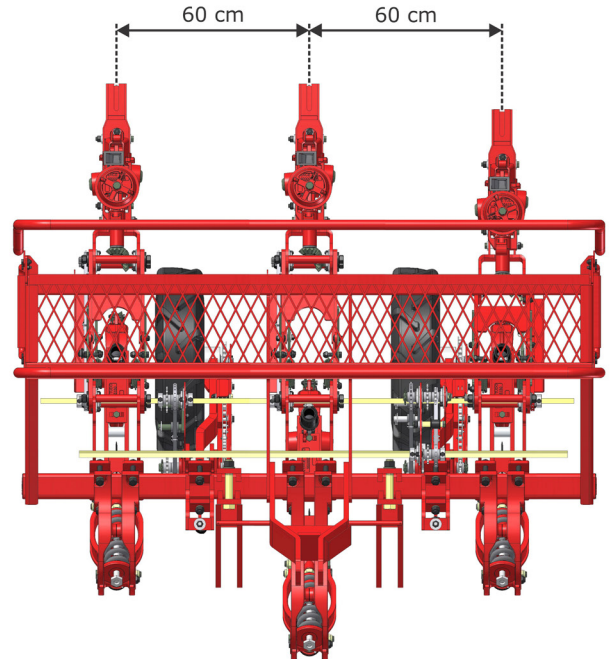
**2L - 90cm:**



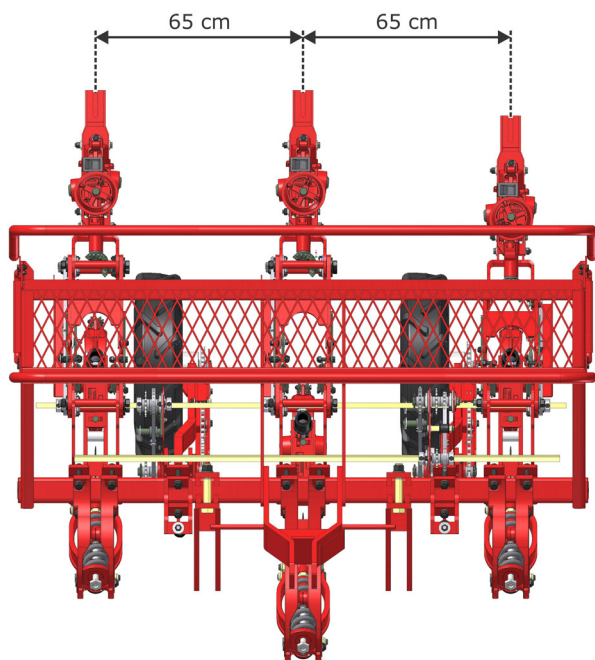
**3L - 45cm:**



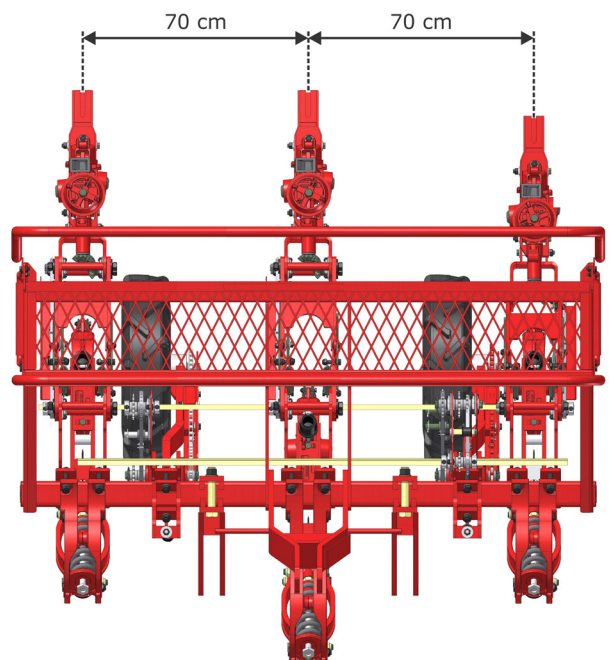
**3L - 60cm:**



**3L - 65cm:**

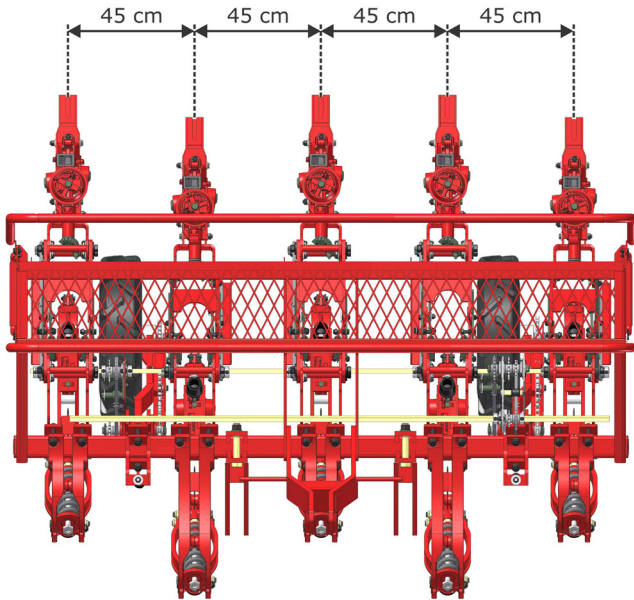


**3L - 70cm:**

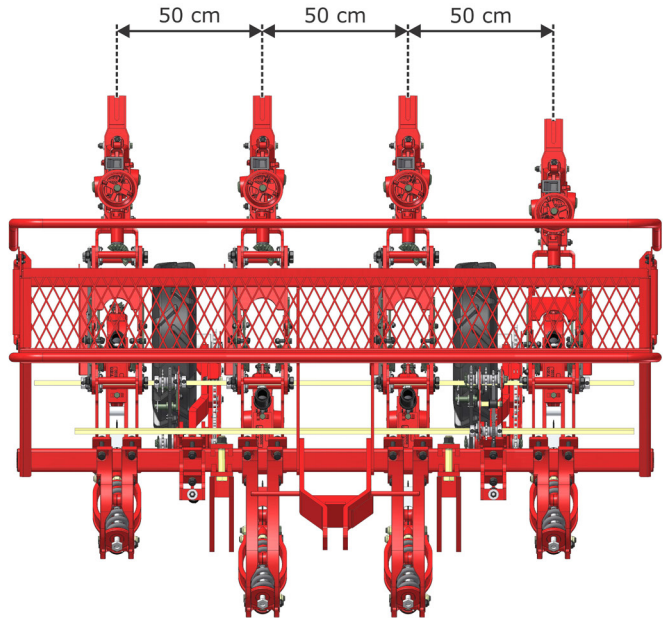


● 5000 PA PANTOGRÁFICA *Série Ouro*

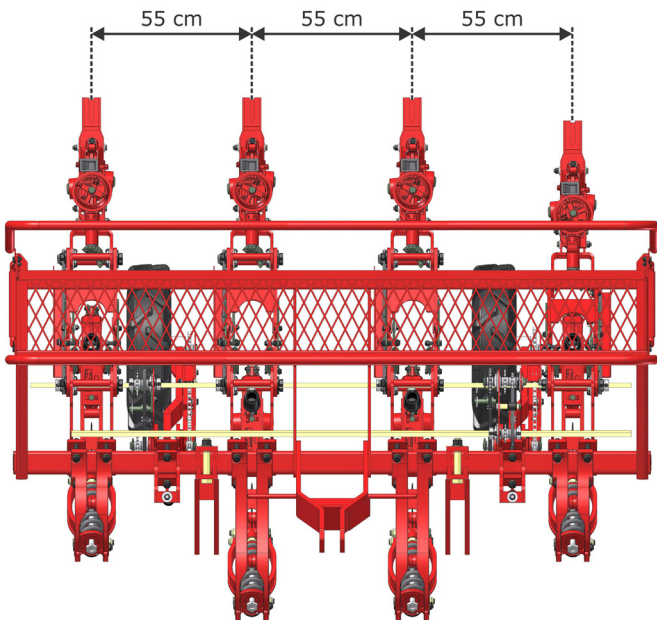
**5L - 45cm:**



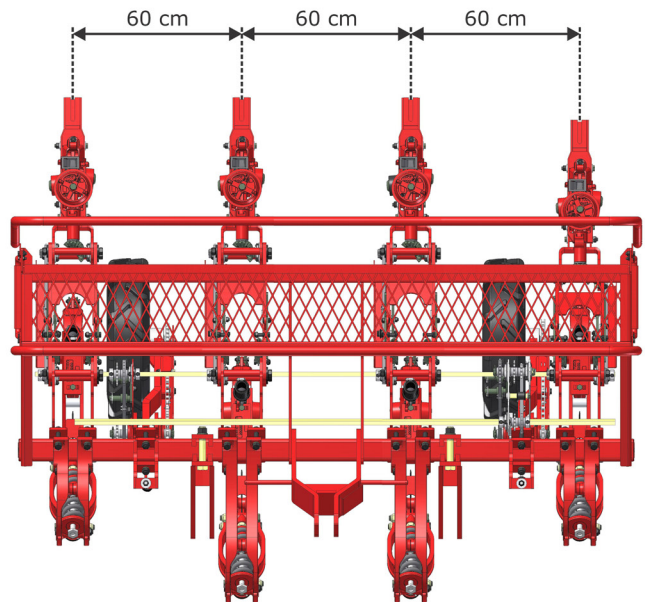
**4L - 50cm:**



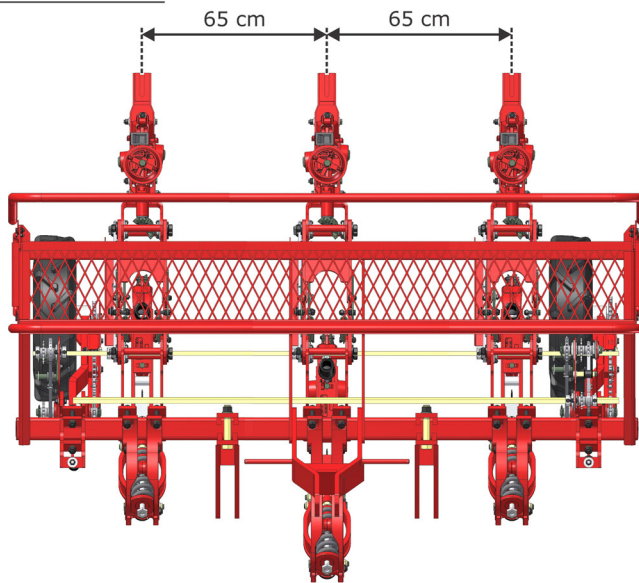
**4L - 55cm:**



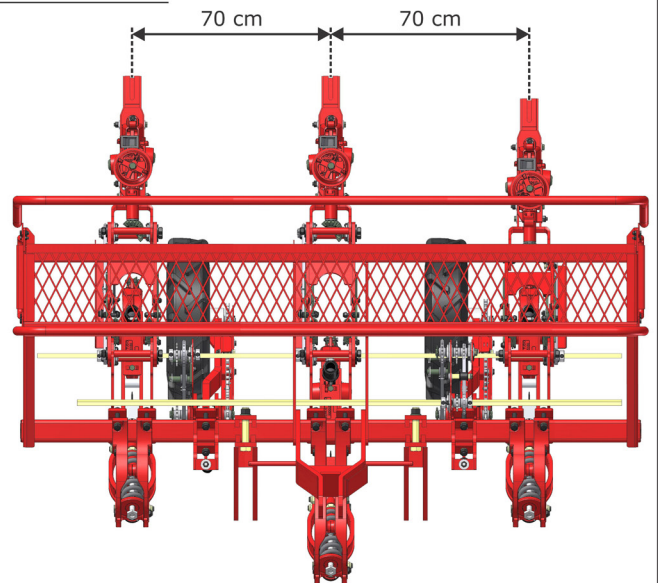
**4L - 60cm:**



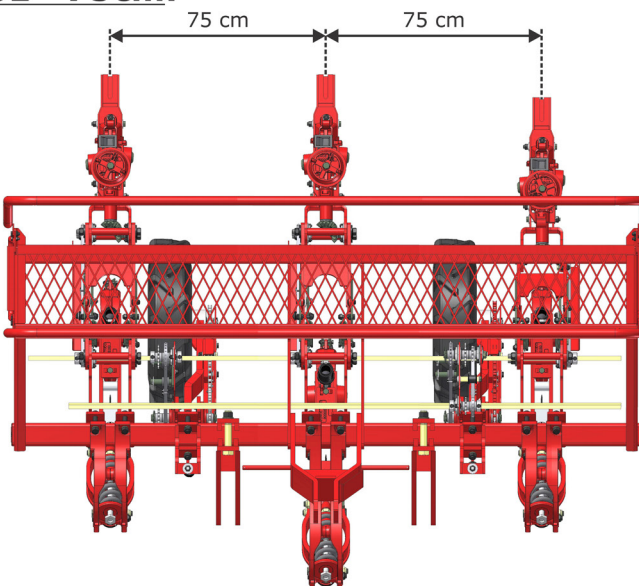
**3L - 65cm:**



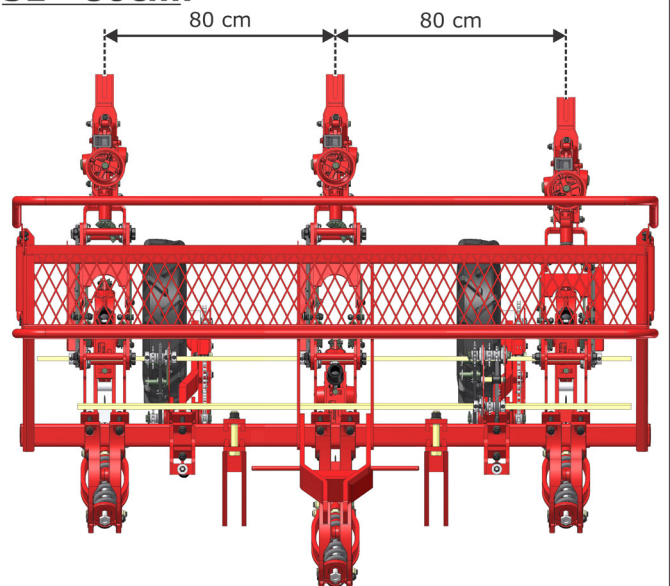
**3L - 70cm:**



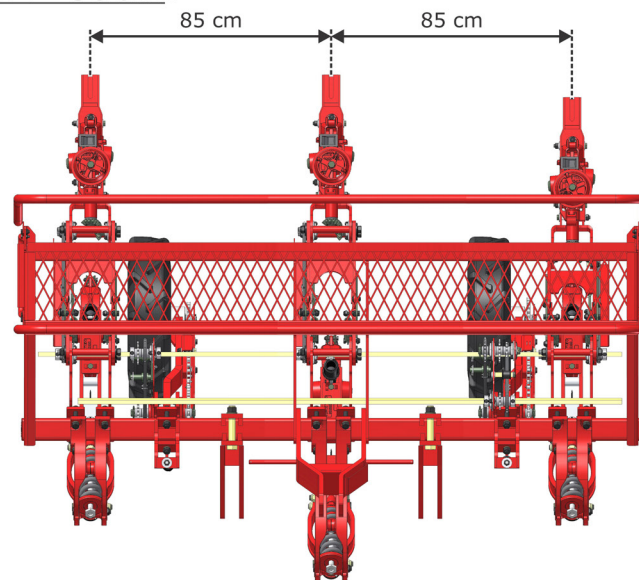
**3L - 75cm:**



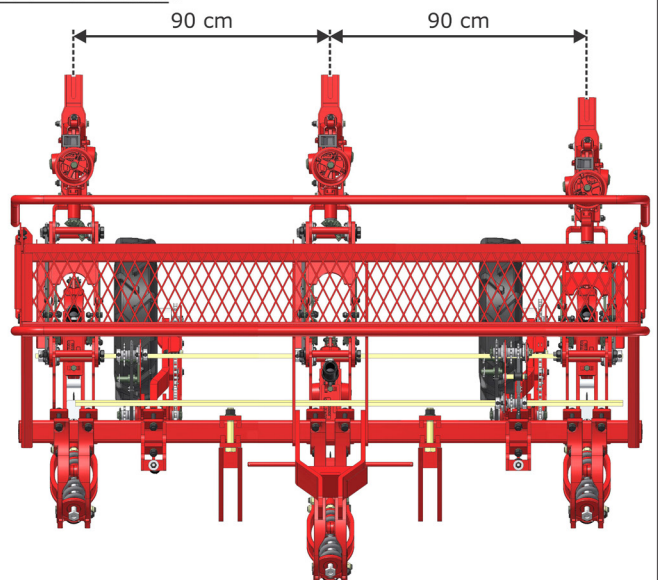
**3L - 80cm:**



**3L - 85cm:**

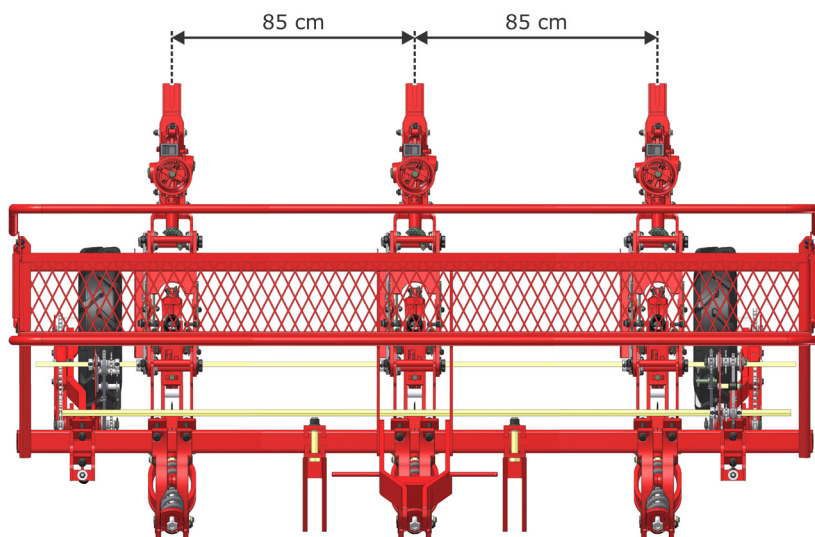


**3L - 90cm:**

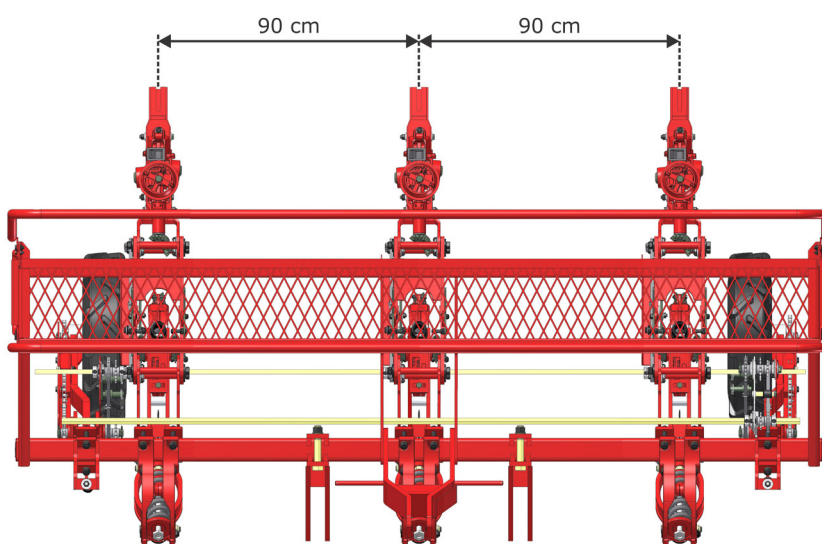


● 6000 PA PANTOGRÁFICA *Série Ouro*

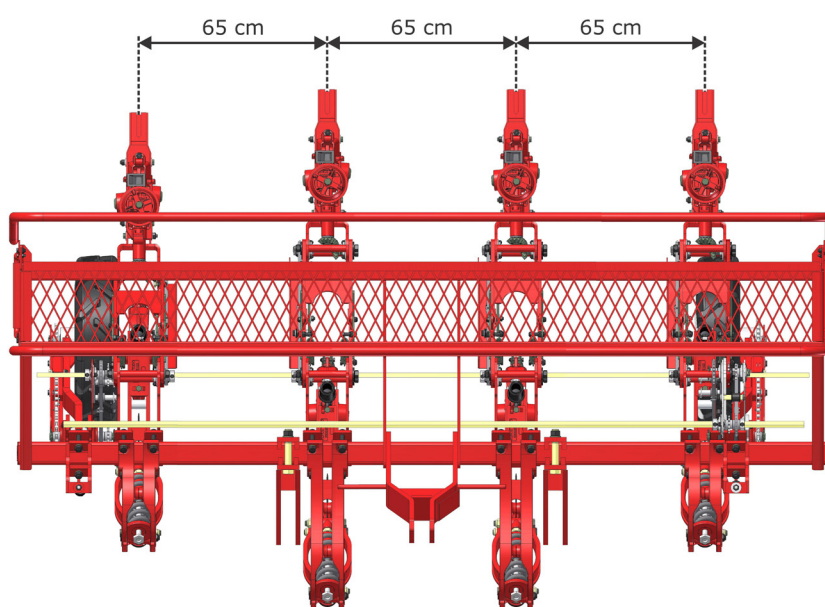
**3L - 85cm:**



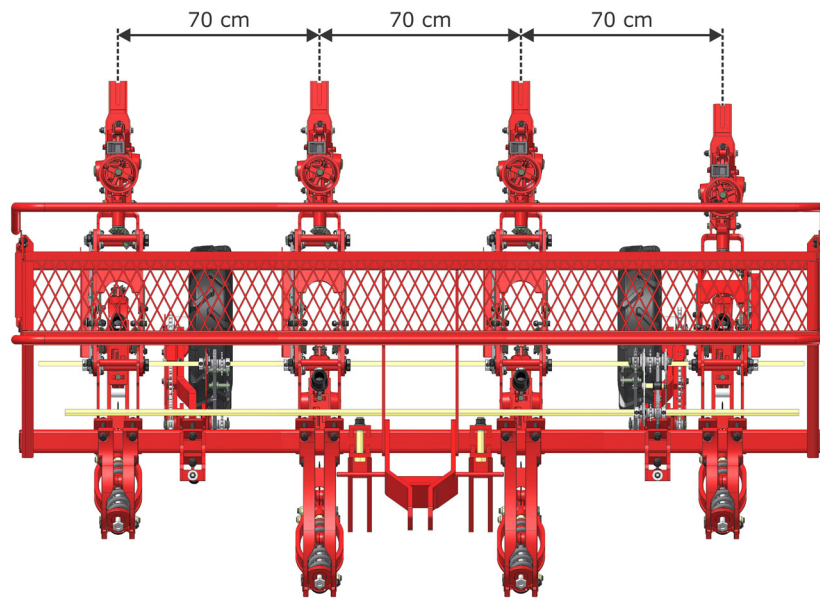
**3L - 90cm:**



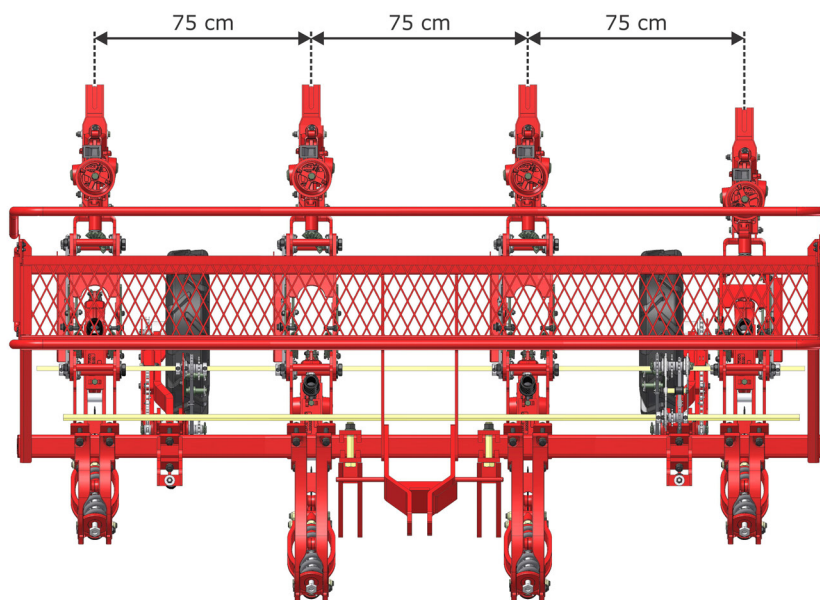
**4L - 65cm:**



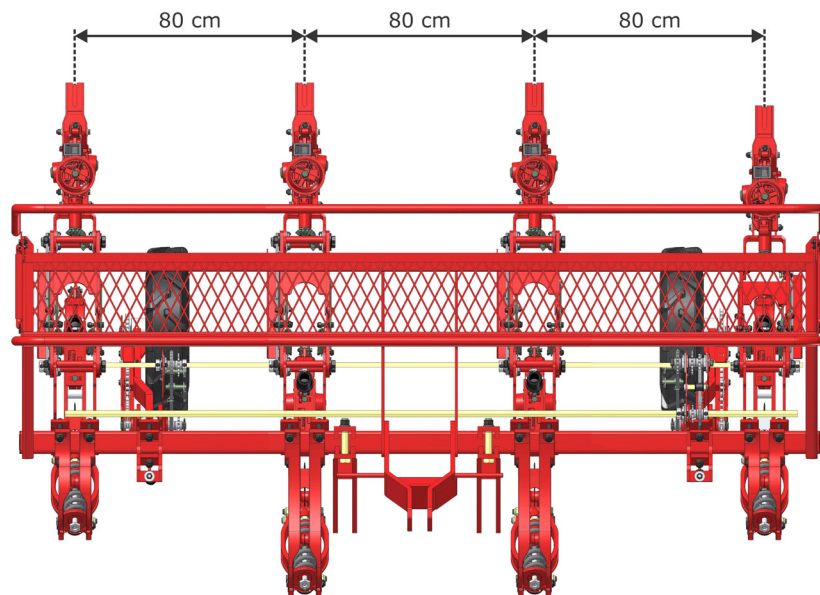
**4L - 70cm:**



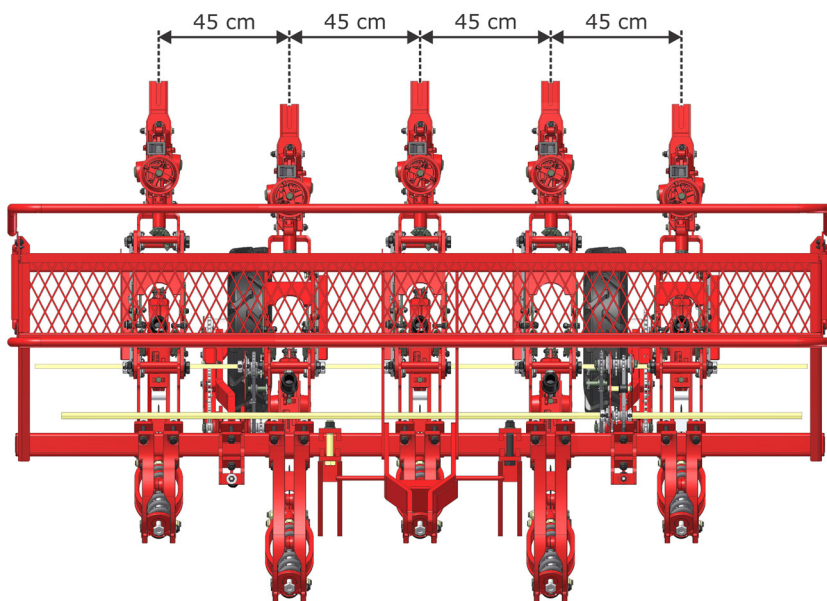
**4L - 75cm:**



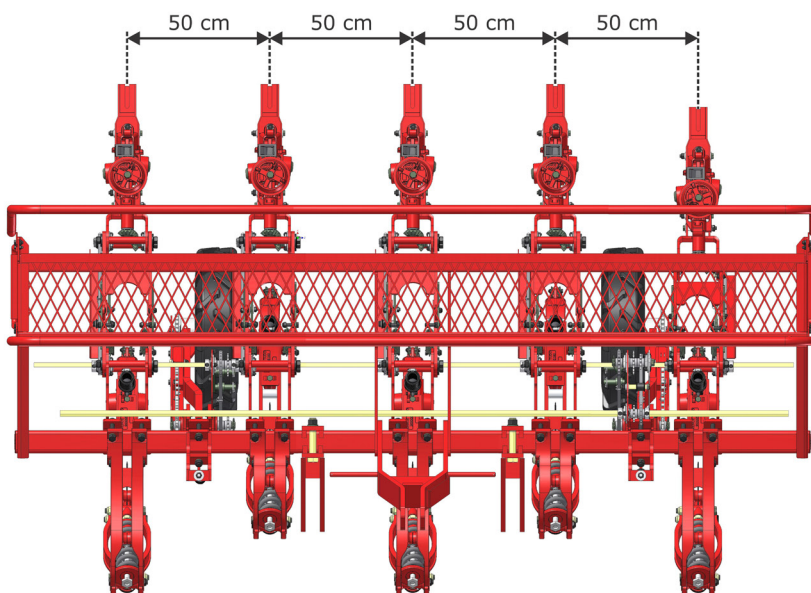
**4L - 80cm:**



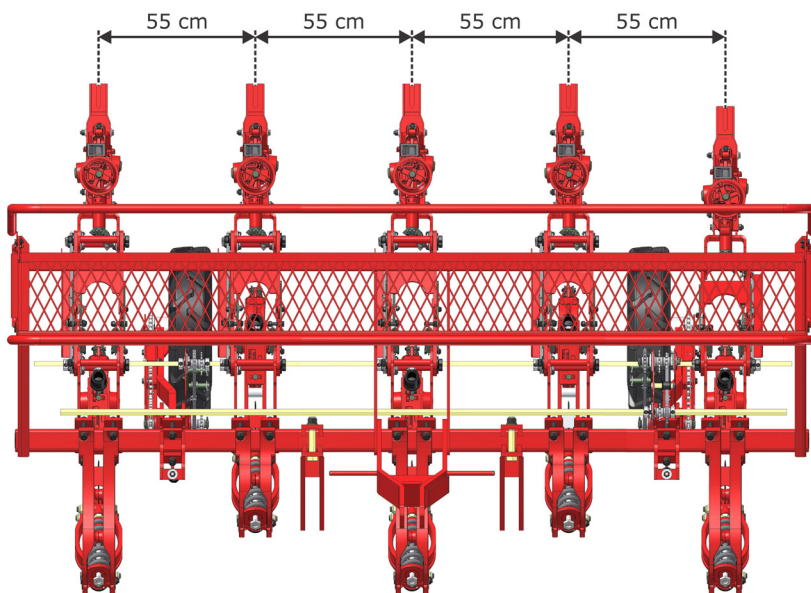
**5L - 45cm:**



**5L - 50cm:**

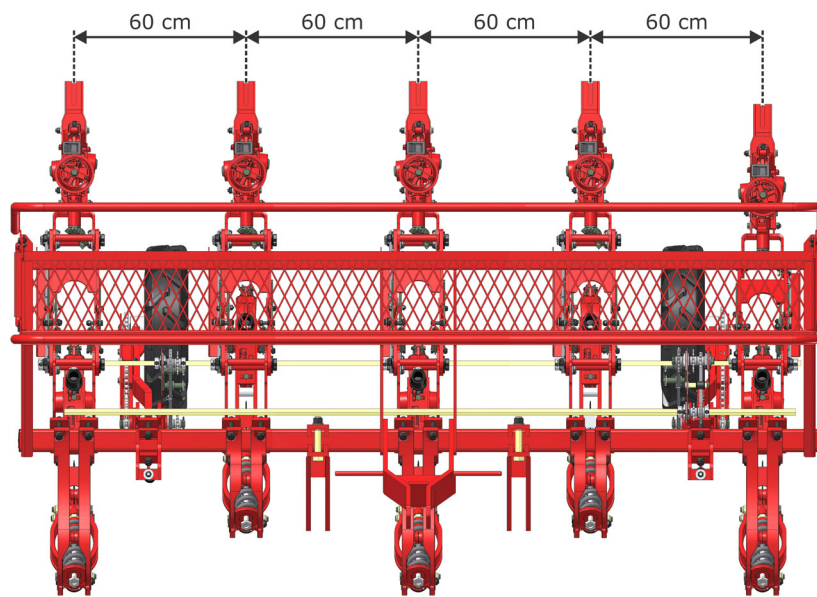


**5L - 55cm:**

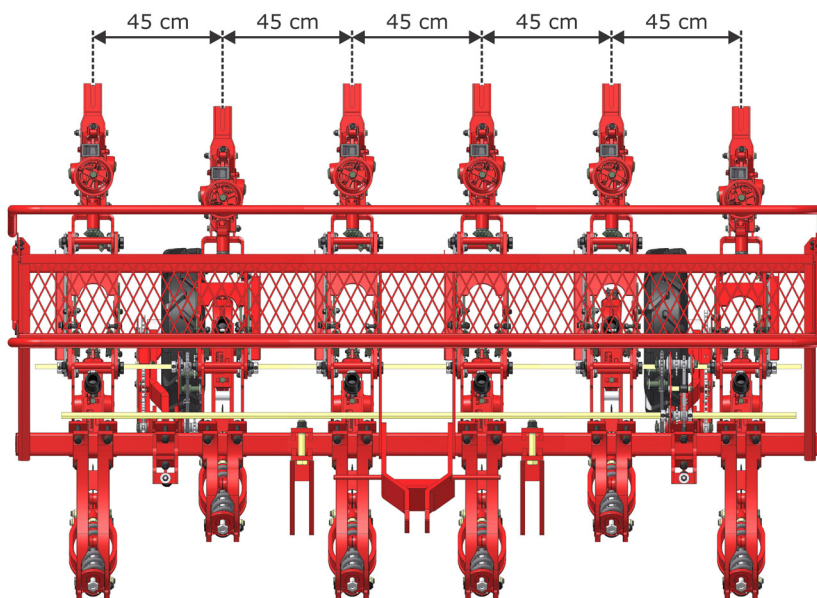




**5L - 60cm:**

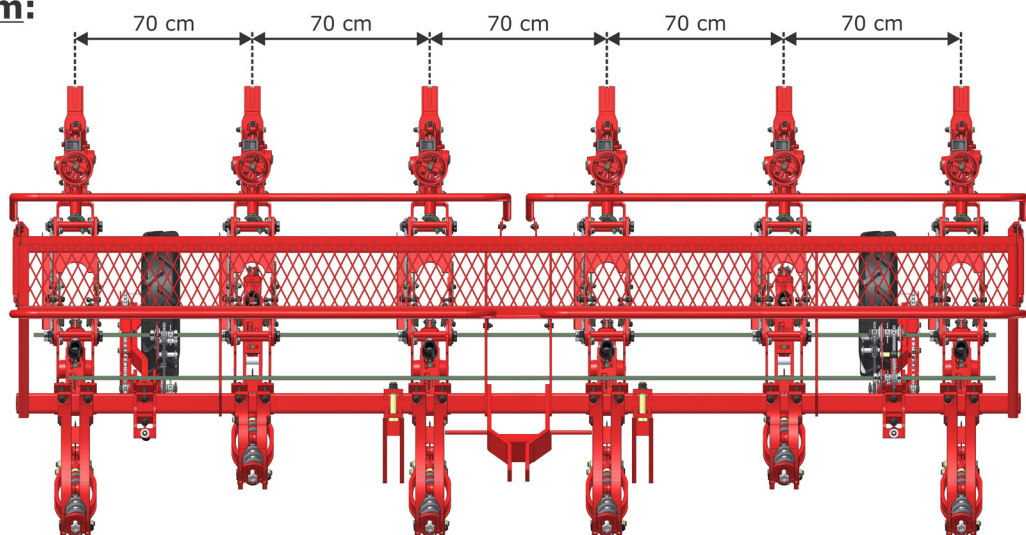


**6L - 45cm:**



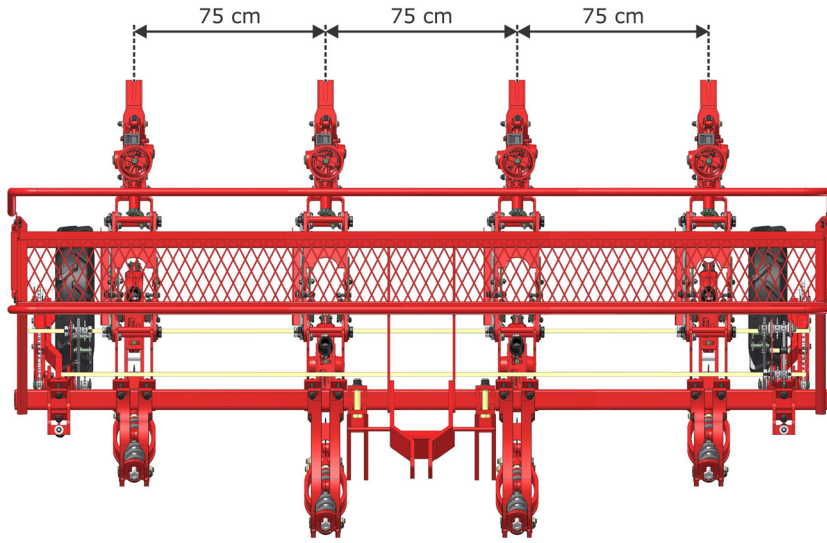
● **6000 SPECIAL PA PANTOGRÁFICA Série Ouro**

**6L - 70cm:**

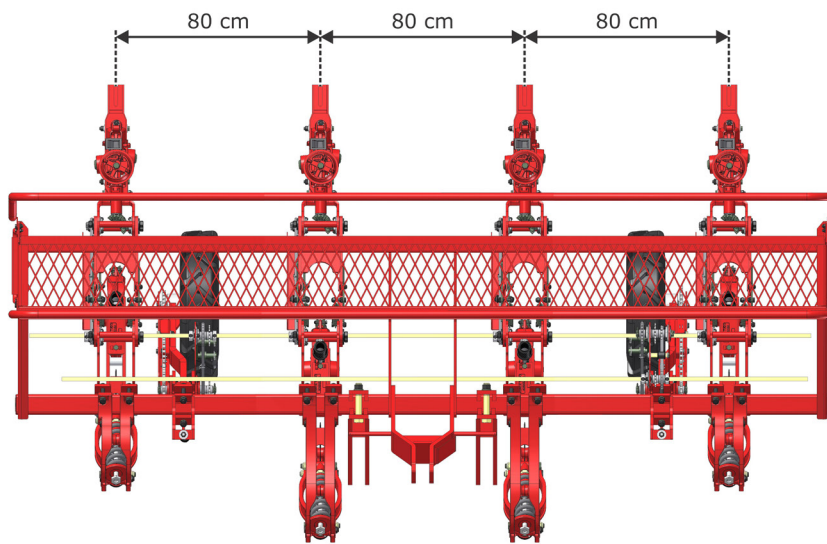


● 7000 PA PANTOGRÁFICA *Série Ouro*

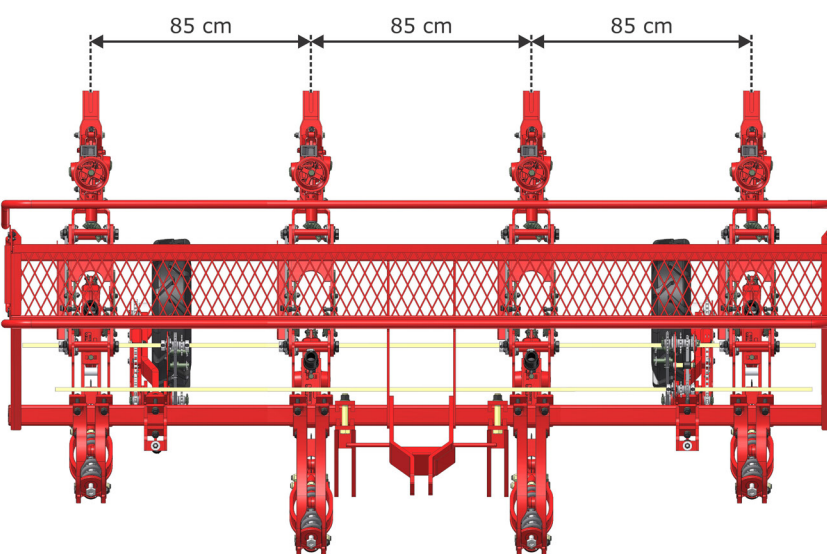
**4L - 75cm:**



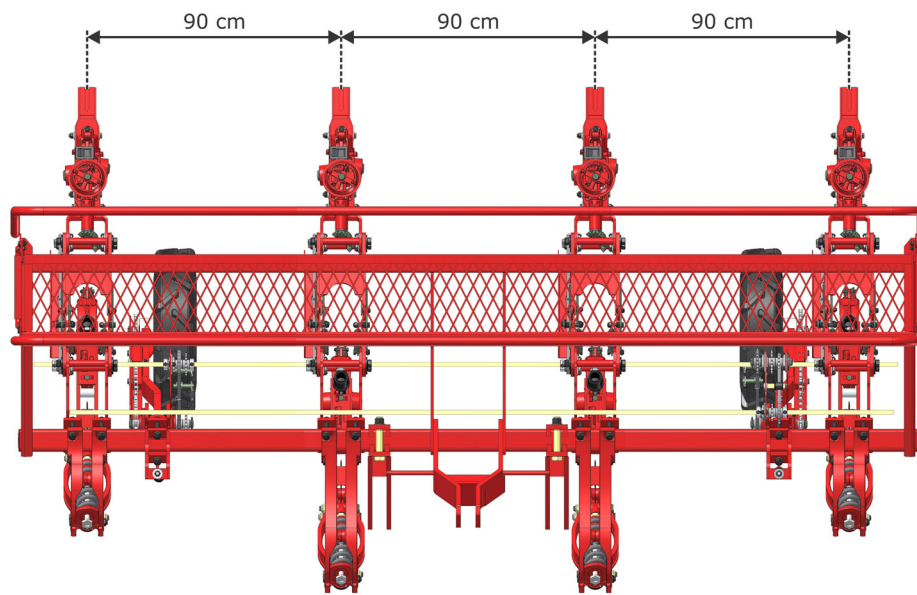
**4L - 80cm:**



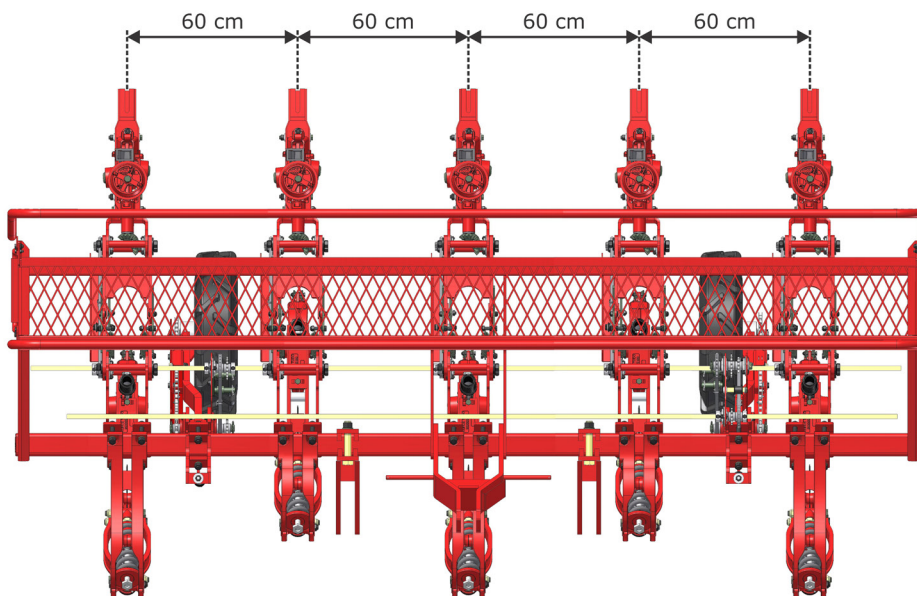
**4L - 85cm:**



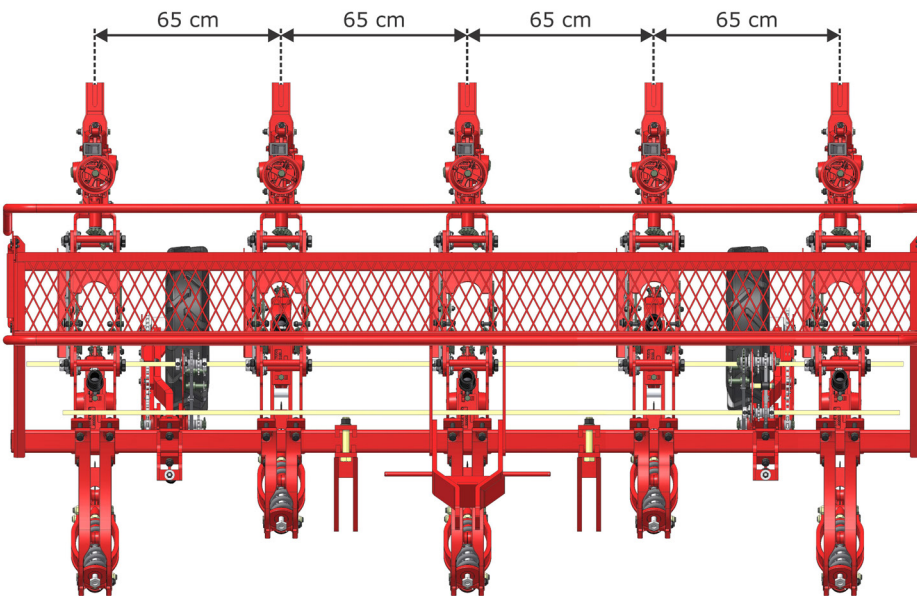
**4L - 90cm:**



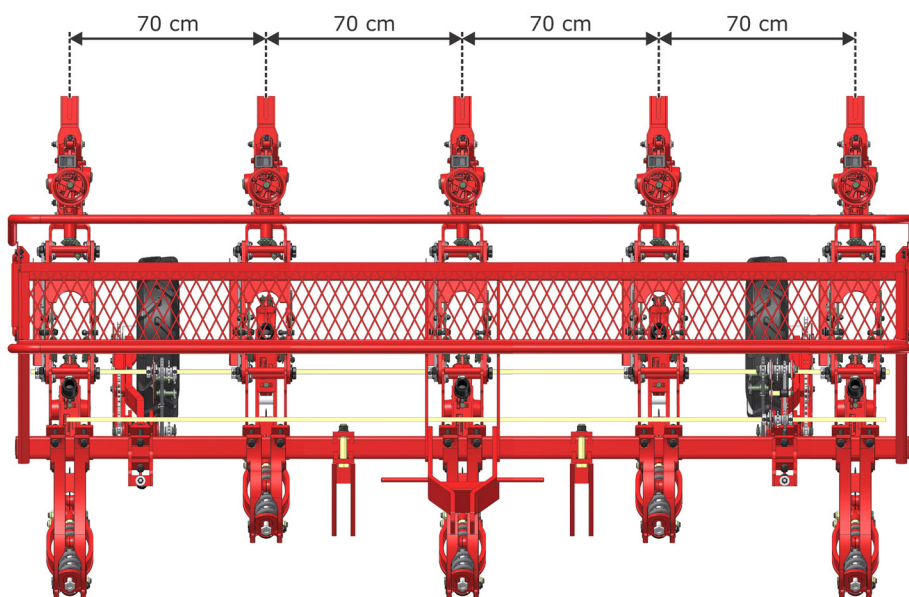
**5L - 60cm:**



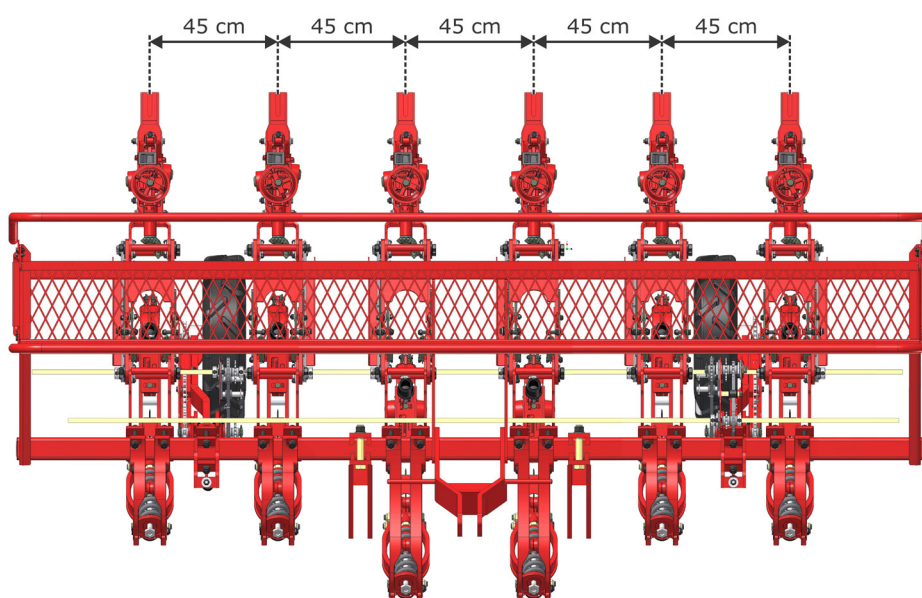
**5L - 65cm:**



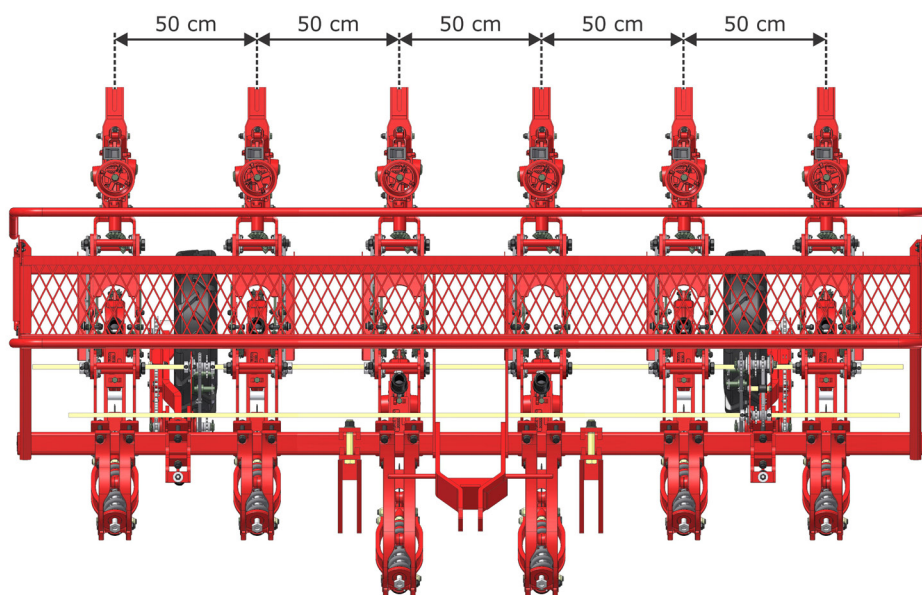
**5L - 70cm:**



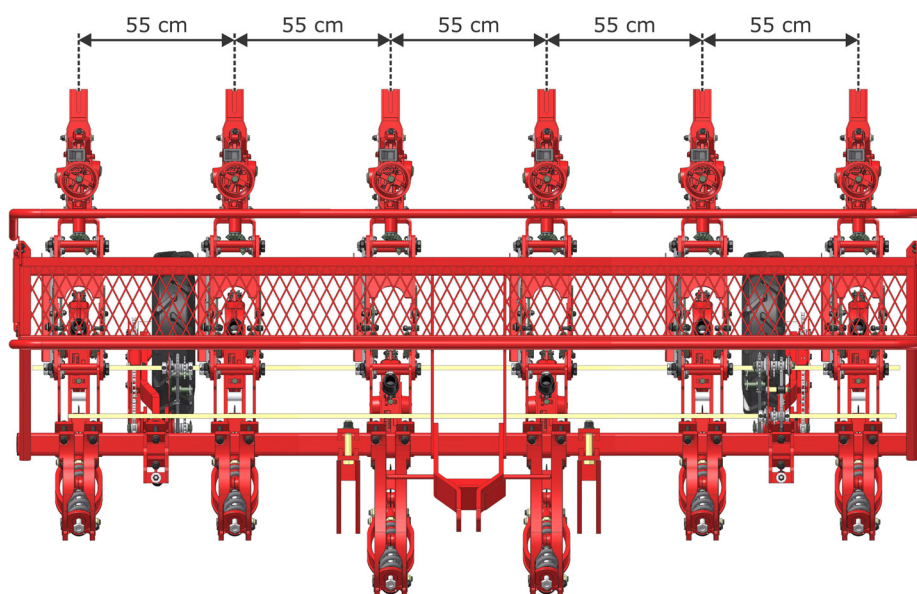
**6L - 45cm:**



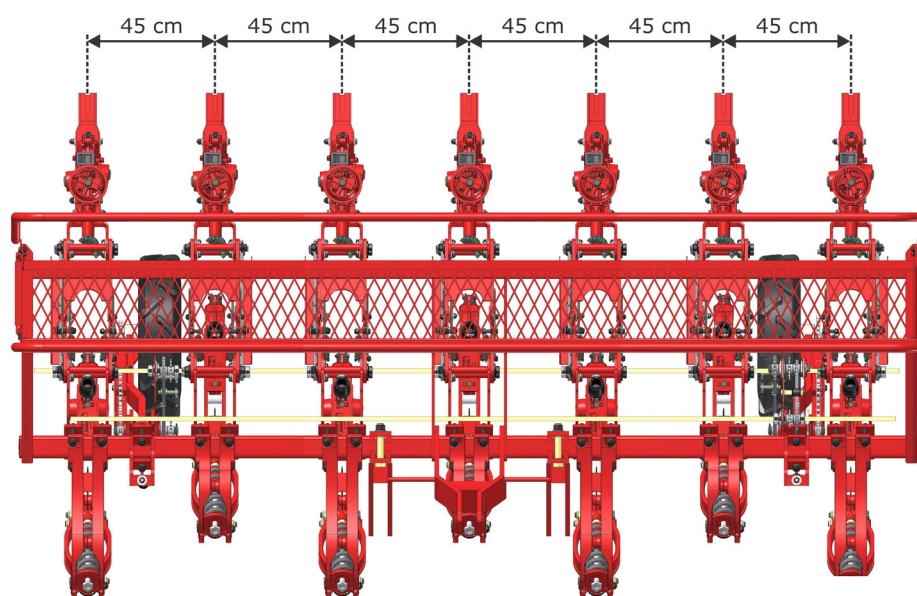
**6L - 50cm:**



**6L - 55cm:**



**7L - 45cm:**



### 12.3- Change in spacing of seed and fertilizer rows

- **Procedures for Changing Spacing**

- 1- Change the spacing of the grooving rows and hoppers in a firm, flat and clean place;
- 2- Check that the seeder is well supported to avoid accidents;
- 3- Engage the seeder on the tractor and raise it by means of the hydraulic lift of the tractor;
- 4- Loosen the nuts (A) (fig. 05) of the support clamps (B) of the fertilizer row (C). Then, loosen the bolts (D) of the stop (E);
- 5- Adjust the complete fertilizer row unit (C) and the seed row (F), according to the desired spacing;
- 6- Re-tighten bolts (D) and nuts (A) to keep the adjusted spacing;
- 7- Note the grease points.

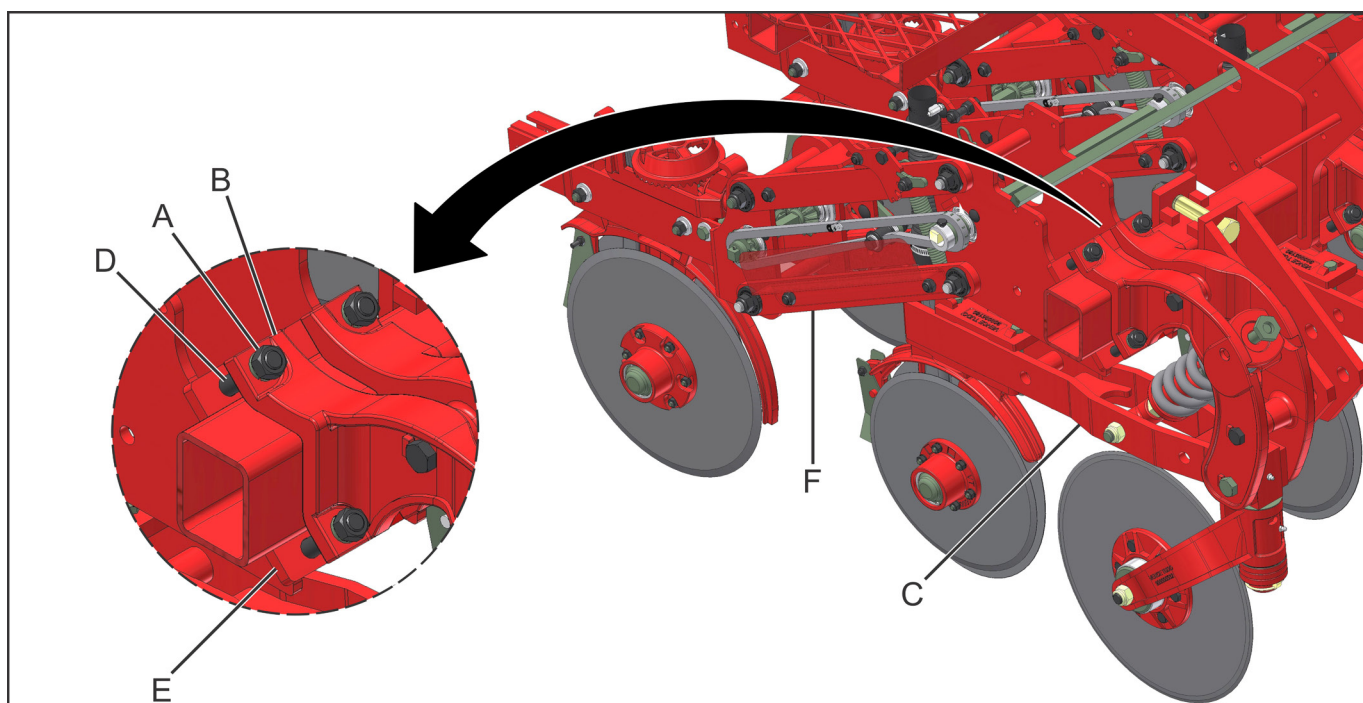


fig. 05



**ATTENTION**

**Do not allow children or persons not involved in the operation to get close to work during operations.**

**Make sure the seeder is in the correct position and turn off the tractor engine. This is critical to your safety.**

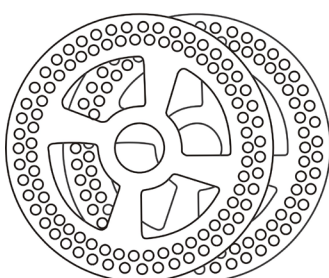
## 12.4- Seed distribution system

The correct regulation of the seeder to be established in order to obtain a final stand suitable for the crop should consider the variety to be planted, the germinative power (PG) and the vigor of the seed. The correct choice of seed discs should be determined from the shape and size of the seeds

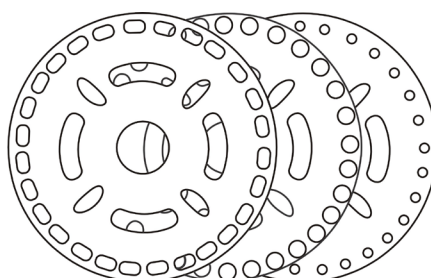
### 12.4.1- Seed metering discs

If you already have the assemblies of discs choose the seeds to be planted so that they can be distributed through these discs that accompany the accessory box, or in the seeder itself. However, if the crop to be planted does not fit into any of the assemblies that accompany the seeder, it is necessary to purchase optional discs by contacting a **VENCE TUDO** Dealer.

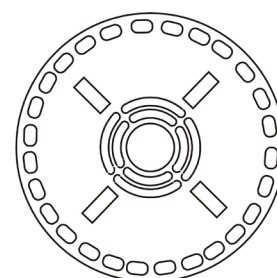
- **Models of seed metering discs available for delivery:**



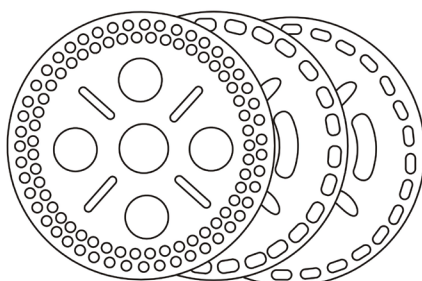
**SOYBEAN**



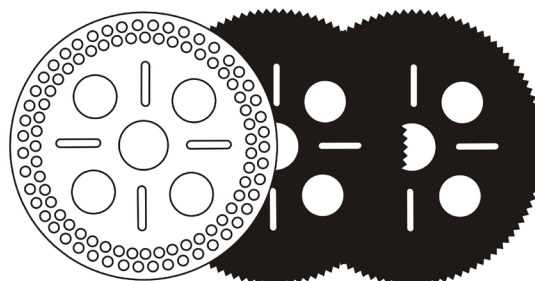
**CORN**



**SUNFLOWER**



**BEAN**



**SORGHUM**

| CROP                   | COLOR | QUANTITY OF HOLES | HOLE SIZE     | HOLE FORMAT      |
|------------------------|-------|-------------------|---------------|------------------|
| SOYBEAN GRAIN TO GRAIN | GRAY  | 90                | 8 mm          | ROUND DOUBLE ROW |
| SOYBEAN GRAIN TO GRAIN | GRAY  | 90                | 9 mm          | ROUND DOUBLE ROW |
| CORN                   | RED   | 28                | 10 x 14.5 mm  | OBLONG           |
| CORN                   | GREEN | 28                | 9 x 13.5 mm   | OBLONG           |
| CORN                   | GRAY  | 28                | 8.5 x 11.5 mm | OBLONG           |
| CORN                   | BLUE  | 28                | 12 mm         | ROUND            |
| BEAN                   | -     | -                 | -             | -                |

**Note:**

- Representative figures.
- \* For the soybean crop, with the grain to grain model, the seed should have a uniform size and shape so that two seeds do not occupy the same hole in the disc.
- \*\* For the bean crop, the same corn discs are used, as well as the beans option.

● **Models of optional seed metering discs:**

| CROP                   | COLOR                | QUANTITY OF HOLES | HOLE SIZE     | HOLE FORMAT       |
|------------------------|----------------------|-------------------|---------------|-------------------|
| SOYBEAN GRAIN TO GRAIN | GRAY                 | 90                | 7 mm          | ROUND DOUBLE ROW  |
| BEAN GRAIN TO GRAIN    | WHITE                | 62                | 8.5 x 12 mm   | OBLONG DOUBLE ROW |
| SORGHUM                | RED                  | 86                | 5.5 mm        | ROUND DOUBLE ROW  |
| SORGHUM                | GREEN                | 86                | 4.5 mm        | ROUND DOUBLE ROW  |
| SUNFLOWER              | DARK GREEN           | 28                | 5.5 x 11 mm   | OBLONG            |
| SUNFLOWER              | TURQUOISE BLUE       | 28                | 5 x 13 mm     | OBLONG            |
| SUNFLOWER              | LIGHT TURQUOISE BLUE | 28                | 7.5 x 11.5 mm | OBLONG            |
| SUNFLOWER              | PURPLE               | 28                | 5.9 x 11 mm   | OBLONG            |
| SUNFLOWER              | LILAC                | 28                | 5 x 11.5 mm   | OBLONG            |

### **IMPORTANT**

- 1-** Choose a batch or variety of crop to be planted that has the best uniformity and seed quality;
- 2-** The choice of seed distributor disc should be in relation to the shape and size of the seeds it will distribute;
- 3-** It should be taken into account that the seeds will receive treatment with: insecticides, fungicides, inoculants and others, and in the application of these products water is added, so the seeds may increase in size due to the film formed by these treatments and also by the absorption of the water from the seed;
- 4-** After observing all the previous items plus the technical recommendation for the culture, the seed to be distributed should have a certain clearance within the alveolus or hole of the disc. This gap should be considered in the external diameter of the seed;
- 5-** It is of fundamental importance the use of graphite powder together with the seeds, as this acts as a lubricant form of the metering discs, reducing the friction between the parts that make up the distributing mechanism, besides helping in the falling of the seeds keeping the conductor of the seeds smooth. The use of graphite powder does not cause damage to the seeds or interfere with germination, as it is an inert and non-phytotoxic product. **Use 100 grams of graphite powder every 100 kg of seeds.**



**The correction of the germinative power of the seed and the slipping percentage determine a suitable stand for planting.**

**The correct regulation of the seeder is a fundamental factor for the yield of the crop, since the number of plants per linear meter determines the final stand of the crop. Use the seed regulation table as a reference.**



### 12.4.2- Replacement of seed distribution discs

Make the correct choice of disc and the necessary replacements, as well as frequent cleaning of the disc.

To check or replace the discs, press the lever (A) (fig. 06), lift the reservoir (B) (fig. 07) and release base ring (C) through clips (D).

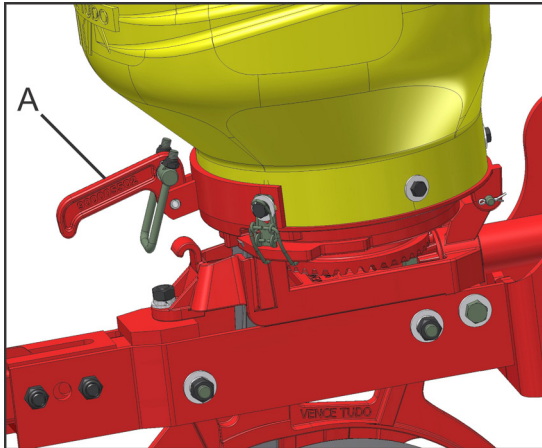


fig. 06

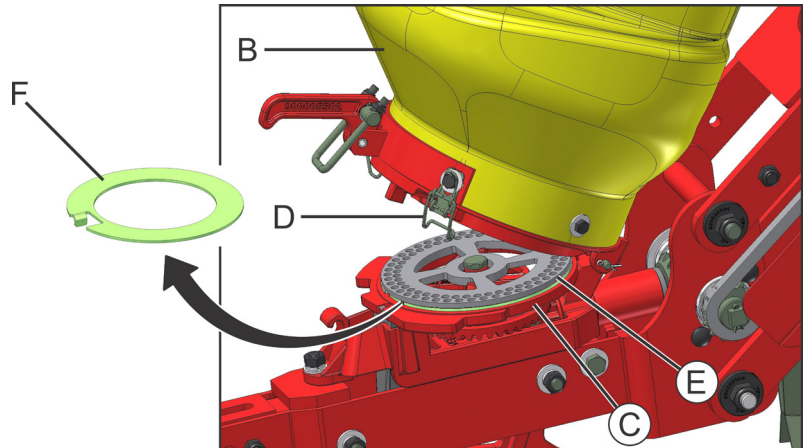


fig. 07

#### IMPORTANT

The space where the disc (E) (fig. 07) is housed in the base ring (C) is **0.33 in.** The disc (E) and the ring (F) to be used must comply with the sum that reaches 0.33 in. If the disc thickness is 0.33 in, it is not necessary to use the ring. Check the table on the side.

| DISC (E) | RING (F) |
|----------|----------|
| 8.5 mm   | -        |
| 5.5 mm   | 3.0 mm   |
| 4.5 mm   | 4.0 mm   |
| 3.5 mm   | 5.5 mm   |

### 12.4.3- Assembly of seed hoppers and replacement of rollers

- 1- Loosen the set screw securing the seed hopper and remove it;
- 2- Remove the pin (A) (fig. 08) securing the articulator (B) of roller (C);
- 3- Remove the articulator (B), and change the roller model if necessary;
- 4- Note the roller model (C) to be used. It should be compatible with the perforation of the disc to be used, with single or double row.

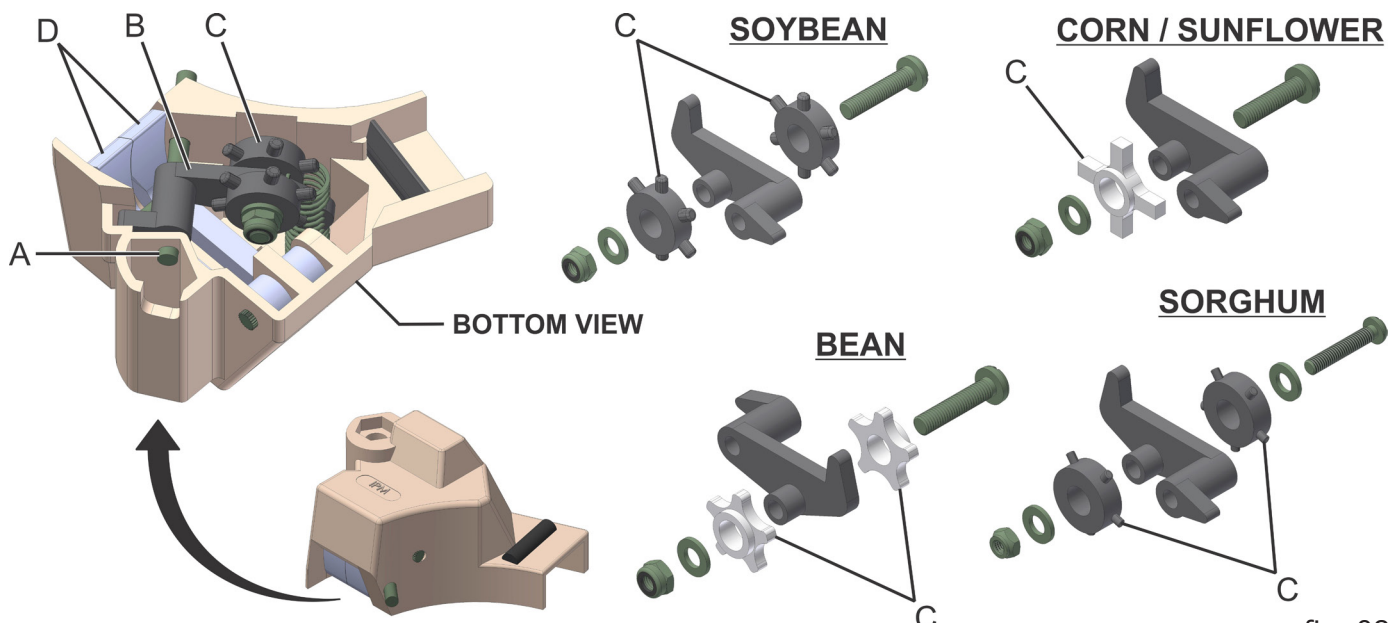


fig. 08

**IMPORTANT**

The working position of the roller should be in the center of the bore of the distributor disc, because if used outside the working position, it will cause disc wear and problems in the distribution of seeds.

Observe upon assembling the seed hopper if the scraper triggers (D) (fig. 08) are free.

Do the internal cleaning of the seed box at least once a day for untreated seeds and twice a day when using treated seeds.

**12.4.4- TABLE: Seed distribution adjustment**

| SEED TRANSMISSION | AID TABLE IN PRIOR ADJUSTMENT FOR SEED DISTRIBUTION |        |                                   |        |                 |        |      |      |
|-------------------|---|--------|-----------------------------------|--------|-----------------|--------|------|------|
|                   | Rolled Perimeter 1,81m                              |        | SEEDER FERTILIZER PA PANTOGRÁFICA |        |                 |        |      |      |
|                   | CORN - 28 HOLES                                     |        | BEANS - 62 HOLES                  |        | SOYA - 90 HOLES |        |      |      |
|                   |   | DRIVEN |                                   | DRIVEN |                 | DRIVEN |      |      |
|                   |   | 19     | 24                                | 19     | 24              | 19     | 24   |      |
|                   | DRIVE   | 14     | 3,4                               | 2,7    | 7,6             | 6,0    | 11,1 | 8,8  |
|                   |   | 16     | 3,9                               | 3,1    | 8,7             | 6,9    | 12,6 | 10,0 |
|                   |   | 18     | 4,4                               | 3,5    | 9,7             | 7,7    | 14,2 | 11,3 |
|                   |   | 21     | 5,1                               | 4,1    | 11,4            | 9,0    | 16,6 | 13,1 |
|                   |   | 28     | 6,8                               | 5,4    | 15,2            | 12,0   | 22,1 | 17,5 |
|                   |   | 32     | 7,8                               | 6,2    | 17,3            | 13,7   | 25,3 | 20,0 |
| 38                | 9,3   | 7,3    | 20,6                              | 16,3   | 30,0            | 23,8   |      |      |

TABLE 2

**12.4.5- Seed axis transmission**

Adjustment of the seed quantity is achieved by exchanging the sprockets, the drive shaft (A) (fig. 09) and the driven shaft (B).

To do this, loosen the tensioner (C) and move the chain (D). Remove the locking cotter pin (E) and replace the sprocket (F).

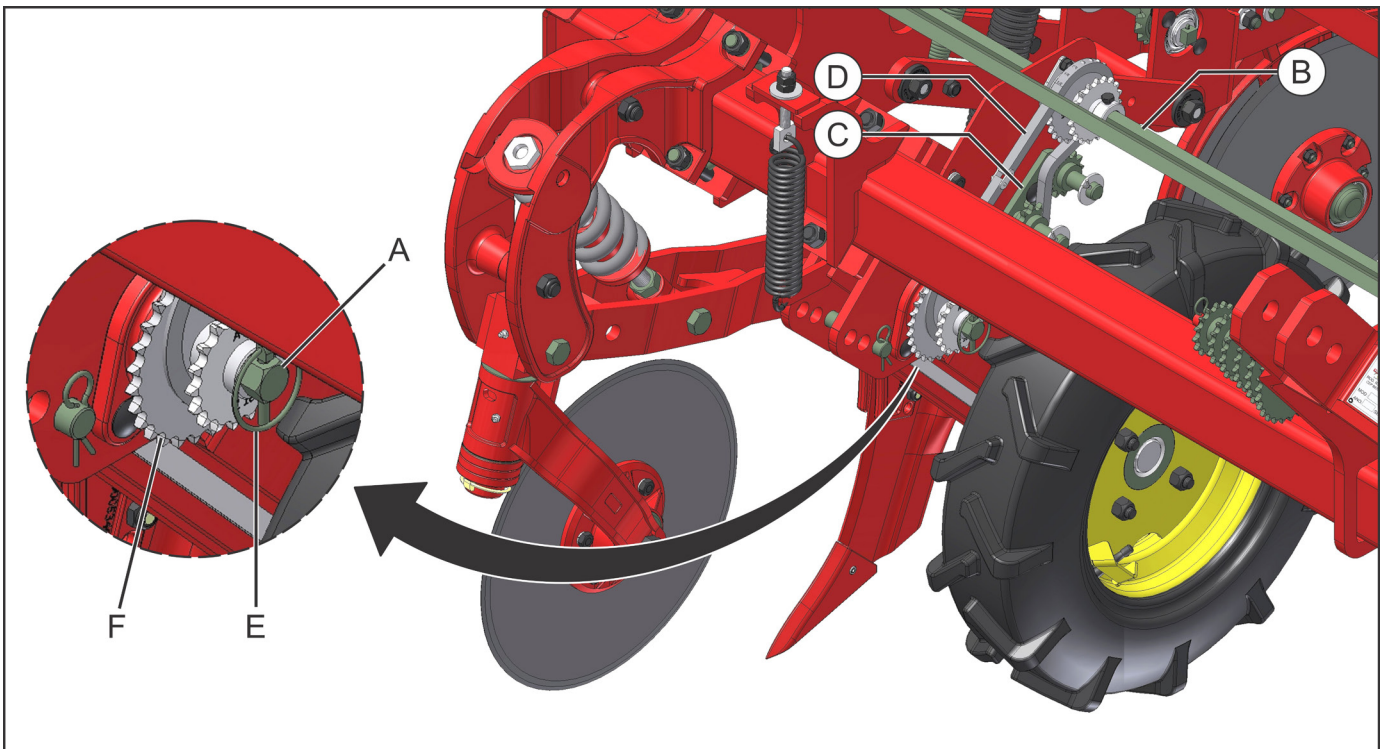


fig. 09

### 12.4.6 - Calculation to determine population or number of plants by hectare

#### EXAMPLE:

|  |               |
|--|---------------|
| Number of plants per linear meter        | N             |
| Final population per hectare (estimated) | 50,000 plants |
| Spacing between rows                     | 0.80 (80 cm)  |
| 1 hectare                                | 10,000 m      |
| Germinative power of the seed (GP)       | 96%           |
| Approximate percentage of slippage       | 5%            |
| Wheel circumference                      | 1.81 m        |

$$1 \text{ ha} = 10,000 \text{ m}^2 \quad \underline{\hspace{2cm}} \quad 50,000 \text{ plants}$$

$$*14.08 \text{ m}^2 \quad \underline{\hspace{2cm}} \quad N$$

|  |
|--|
| $*14,48 \text{ m}^2 = \text{Spacing} \times \text{wheel perimeter} \times \text{number of wheel turns}$<br>$*14.48 \text{ m}^2 = 0.80 \text{ m} \times 1.81 \text{ m} \times 10$ |
|--|

$$N = \frac{14.48 \text{ m}^2 \times 50,000}{10,000 \text{ m}}$$

$$N = 72.4 \text{ m}$$

$$N = 90 \text{ m} = 5 \text{ plants / linear meter}$$

$$**18.1 \text{ m}$$

|   |
|---|
| $**18,1 = 10 \text{ wheel turns} \times \text{circumference } 1.81 \text{ m}$ |
|---|

### 12.4.7 - Correction of germinative power (percentage)

$$N = 5 \text{ plants / linear meter} \quad \underline{\hspace{2cm}} \quad 96\%$$

$$N \quad \underline{\hspace{2cm}} \quad 100\%$$

|           |
|-----------|
| $N = 4.8$ |
|-----------|

### 12.4.8 - Correction of slippage (percentage)

$$N = 4.8 \text{ plants / linear meter} \quad \underline{\hspace{2cm}} \quad 100\%$$

$$\text{Correction} \quad \underline{\hspace{2cm}} \quad 5\%$$

|            |
|------------|
| $N = 5.04$ |
|------------|

5,04 is the number of plants / linear meter that should be used in setting up the planter.



### IMPORTANT

If it is necessary to determine the quantity of kilograms of seeds per hectare, use the same method to calculate the amount of fertilizer.

Make the correction of the germinative power of the seeds so that the final stand of the crop is not harmed.

During planting, seed and fertilizer depth and compaction should be checked at least three times a day or when there are changes in planting areas as well as changes in dead cover crops.

#### 12.4.9- APPROXIMATE TABLE: Number of seeds per hectare

| SEEDS /<br>LINEAR<br>METER | DISTANCE<br>BETWEEN<br>SEEDS (cm) | SPACING BETWEEN ROWS |         |         |         |         |         |         |         |         |         |
|----------------------------|-----------------------------------|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                            |                                   | 45                   | 50      | 55      | 60      | 65      | 70      | 75      | 80      | 85      | 90      |
| 4,0                        | 25,0                              | 88.889               | 80.000  | 72.727  | 66.667  | 61.538  | 57.143  | 53.333  | 50.000  | 47.059  | 44.444  |
| 5,0                        | 20,0                              | 111.111              | 100.000 | 90.909  | 83.333  | 76.923  | 71.429  | 66.667  | 62.500  | 58.824  | 55.556  |
| 5,2                        | 19,2                              | 115.556              | 104.000 | 94.545  | 86.667  | 80.000  | 74.286  | 69.333  | 65.000  | 61.176  | 57.778  |
| 5,4                        | 18,5                              | 120.000              | 108.000 | 98.182  | 90.000  | 83.077  | 77.143  | 72.000  | 67.500  | 63.529  | 60.000  |
| 5,6                        | 17,9                              | 124.444              | 112.000 | 101.818 | 93.333  | 86.154  | 80.000  | 74.667  | 70.000  | 65.882  | 62.222  |
| 5,8                        | 17,2                              | 128.889              | 116.000 | 105.455 | 96.667  | 89.231  | 82.857  | 77.333  | 72.500  | 68.235  | 64.444  |
| 6,0                        | 16,7                              | 133.333              | 120.000 | 109.091 | 100.000 | 92.308  | 85.714  | 80.000  | 75.000  | 70.588  | 66.667  |
| 6,2                        | 16,1                              | 137.778              | 124.000 | 112.727 | 103.333 | 95.385  | 88.571  | 82.667  | 77.500  | 72.941  | 68.889  |
| 6,4                        | 15,6                              | 142.222              | 128.000 | 116.364 | 106.667 | 98.462  | 91.429  | 85.333  | 80.000  | 75.294  | 71.111  |
| 6,6                        | 15,1                              | 146.667              | 132.000 | 120.000 | 110.000 | 101.538 | 94.286  | 88.000  | 82.500  | 77.647  | 73.333  |
| 6,8                        | 14,7                              | 151.111              | 136.000 | 123.636 | 113.333 | 104.615 | 97.143  | 90.667  | 85.000  | 80.000  | 75.556  |
| 7,0                        | 14,3                              | 155.556              | 140.000 | 127.273 | 116.667 | 107.692 | 100.000 | 93.333  | 87.500  | 82.353  | 77.778  |
| 7,5                        | 13,3                              | 166.667              | 150.000 | 136.364 | 125.000 | 115.385 | 107.143 | 100.000 | 93.750  | 88.235  | 83.333  |
| 8,0                        | 12,5                              | 177.778              | 160.000 | 145.455 | 133.333 | 123.077 | 114.286 | 106.667 | 100.000 | 94.118  | 88.889  |
| 8,5                        | 11,7                              | 188.889              | 170.000 | 154.545 | 141.667 | 130.769 | 121.429 | 113.333 | 106.250 | 100.000 | 94.444  |
| 9,0                        | 11,1                              | 200.000              | 180.000 | 163.636 | 150.000 | 138.462 | 128.571 | 120.000 | 112.500 | 105.882 | 100.000 |
| 9,5                        | 10,5                              | 211.111              | 190.000 | 172.727 | 158.333 | 146.154 | 135.714 | 126.667 | 118.750 | 111.765 | 105.556 |
| 10,0                       | 10,0                              | 222.222              | 200.000 | 181.818 | 166.667 | 153.846 | 142.857 | 133.333 | 125.000 | 117.647 | 111.111 |
| 11,0                       | 9,1                               | 244.444              | 220.000 | 200.000 | 183.333 | 169.231 | 157.143 | 146.667 | 137.500 | 129.412 | 122.222 |
| 12,0                       | 8,3                               | 266.667              | 240.000 | 218.182 | 200.000 | 184.615 | 171.429 | 160.000 | 150.000 | 141.176 | 133.333 |
| 13,0                       | 7,7                               | 288.889              | 260.000 | 236.364 | 216.667 | 200.000 | 185.714 | 173.333 | 162.500 | 152.941 | 144.444 |
| 14,0                       | 7,1                               | 311.111              | 280.000 | 254.545 | 233.333 | 215.385 | 200.000 | 186.667 | 175.000 | 164.706 | 155.556 |
| 15,0                       | 6,7                               | 333.333              | 300.000 | 272.727 | 250.000 | 230.769 | 214.286 | 200.000 | 187.500 | 176.471 | 166.667 |
| 16,0                       | 6,2                               | 335.556              | 320.000 | 290.909 | 266.667 | 246.154 | 228.571 | 213.333 | 200.000 | 188.235 | 177.778 |
| 17,0                       | 5,9                               | 377.778              | 340.000 | 309.091 | 283.333 | 261.538 | 242.857 | 226.667 | 212.500 | 200.000 | 188.889 |
| 18,0                       | 5,6                               | 400.000              | 360.000 | 327.273 | 300.000 | 276.923 | 257.143 | 240.000 | 225.000 | 211.765 | 200.000 |
| 19,0                       | 5,2                               | 422.222              | 380.000 | 345.455 | 316.667 | 292.308 | 271.429 | 253.333 | 237.500 | 223.529 | 211.111 |
| 20,0                       | 5,0                               | 444.444              | 400.000 | 363.636 | 333.333 | 307.692 | 285.714 | 266.667 | 250.000 | 235.294 | 222.222 |
| 22,0                       | 4,5                               | 488.889              | 440.000 | 400.000 | 366.667 | 338.462 | 314.286 | 293.333 | 275.000 | 258.824 | 244.444 |
| 24,0                       | 4,2                               | 533.333              | 480.000 | 436.364 | 400.000 | 369.231 | 342.857 | 320.000 | 300.000 | 282.353 | 266.667 |
| 26,0                       | 3,9                               | 577.778              | 520.000 | 472.727 | 433.333 | 400.000 | 371.429 | 346.667 | 325.000 | 305.882 | 288.889 |
| 28,0                       | 3,6                               | 622.222              | 560.000 | 509.091 | 466.667 | 430.769 | 400.000 | 373.333 | 350.000 | 329.412 | 311.111 |
| 30,0                       | 3,3                               | 666.667              | 600.000 | 545.455 | 500.000 | 461.538 | 428.571 | 400.000 | 375.000 | 352.941 | 333.333 |

TABLE 3

## 12.5- Fertilizer distribution system

In order to increase productivity and reduce input losses, we must take the utmost care when making adjustments to the seeder. Make daily measurements in the desired amounts of fertilizer and seeds per hectare, since it is in the planting that we define the production of the new crop to be harvested.

Note that the adjustment for changing the quantities is also carried out by changing the sprockets.

### 12.5.1 - Adjustment of the distribution system with Fertisystem meter

The replacement of the drive sprockets (B) (fig. 10) with the driven ones (C), and drive ones (D) with the driven ones (E) is what drives the shaft (F) by adjusting the amount of fertilizer in kg/ha which will be displaced by means of the spindle (A).

To adjust the fertilizer distribution according to the desired amount, check the number of teeth of the drive and driven sprockets, as specified in TABLE 4 (pag. 54). Check if the amount actually obtained is the one desired, if it is not, change the gear ratio by replacing the sprockets. To do this, loosen the bolt (G) (fig. 10) of the tensioner (H) and remove the locking pin (I). Replace them, install the locking pin (I) and re-tighten the bolt (G) of the tensioner (H). Check the amount again.

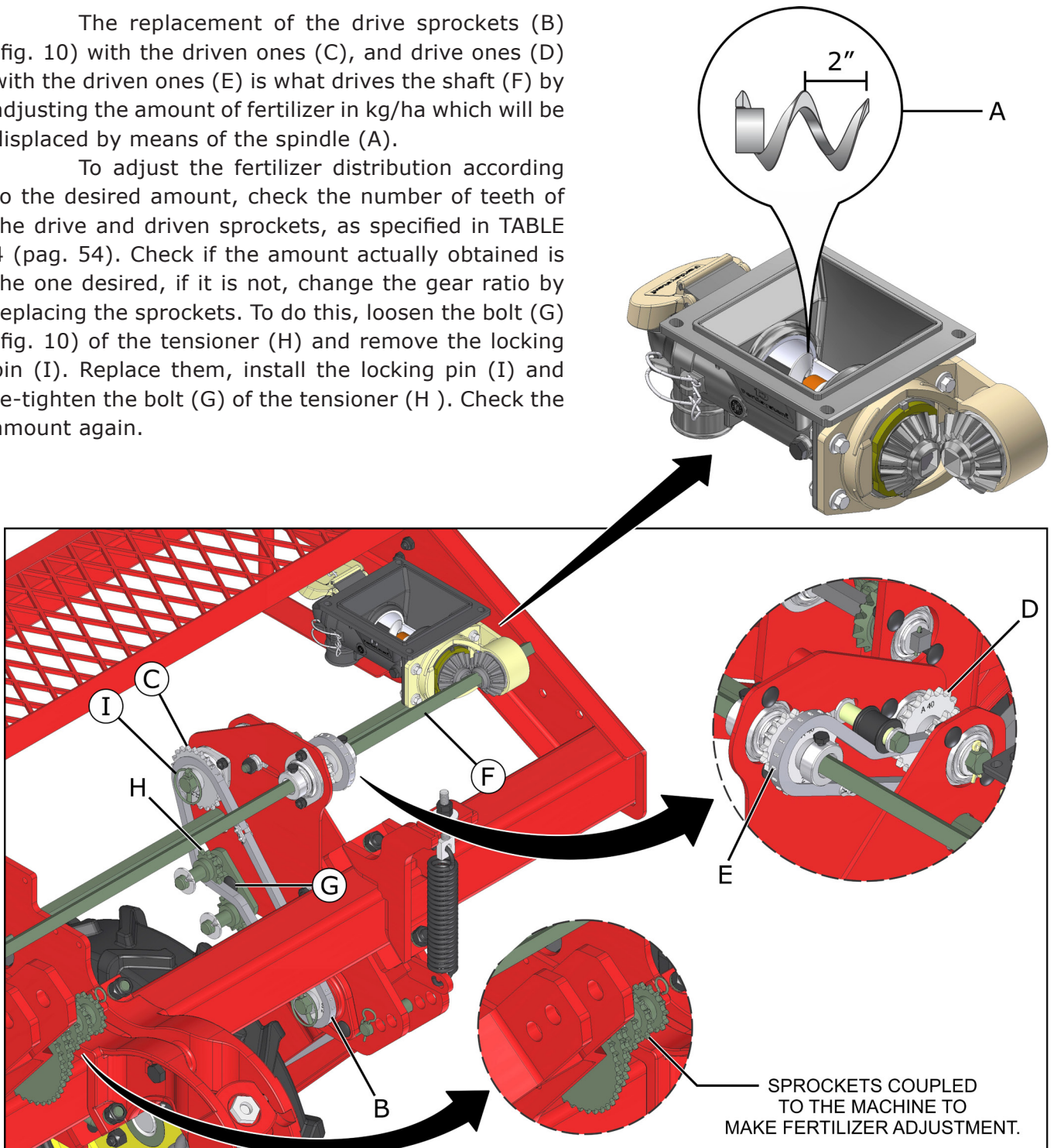
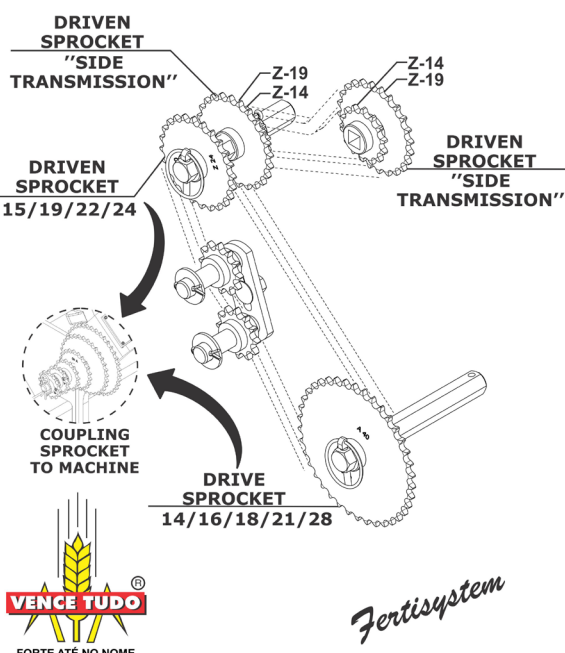


fig. 10

● **TABLE: Adjustment of fertilizer distribution (Fertisystem)**

| <b>FERTILIZER TRANSMISSION</b><br><br> | <b>TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN GRAMS BY 20 LINEAR METERS (11 TURN OF THE DRIVE WHEEL) THROUGH THE COMBINATION OF TOUGH WHEELS PERIMETER WHEELED 1.81m</b><br><b>SEEDER FERTILIZER PA PANTOGRÁFICA</b> |        |  |           |  |           |
|---|--|--------|--|-----------|--|-----------|
|   | COMBINATION SPROCKETS  |        | SIDE TRANSMISSION DRIVE 14 x 19 DRIVEN |           | SIDE TRANSMISSION DRIVE 19 x 14 DRIVEN |           |
|   | DRIVE  | DRIVEN | THREAD 1"                              | THREAD 2" | THREAD 1"                              | THREAD 2" |
|   |  |        | g/20m                                  |           | g/20m                                  |           |
| 14  | 15   | 106    | 324                                    | 196       | 597                                    |           |
| 14  | 19   | 84     | 256                                    | 155       | 471                                    |           |
| 14  | 22   | 73     | 221                                    | 134       | 407                                    |           |
| 14  | 24   | 67     | 180                                    | 109       | 332                                    |           |
| 16  | 15   | 122    | 371                                    | 224       | 683                                    |           |
| 16  | 19   | 96     | 292                                    | 177       | 539                                    |           |
| 16  | 22   | 83     | 253                                    | 153       | 465                                    |           |
| 16  | 24   | 76     | 206                                    | 125       | 380                                    |           |
| 18  | 15   | 137    | 417                                    | 252       | 768                                    |           |
| 18  | 19   | 108    | 329                                    | 199       | 606                                    |           |
| 18  | 22   | 93     | 284                                    | 172       | 524                                    |           |
| 18  | 24   | 86     | 232                                    | 140       | 427                                    |           |
| 21  | 15   | 160    | 486                                    | 294       | 896                                    |           |
| 21  | 19   | 126    | 384                                    | 232       | 707                                    |           |
| 21  | 22   | 109    | 332                                    | 200       | 611                                    |           |
| 21  | 24   | 100    | 270                                    | 163       | 498                                    |           |
| 28  | 15   | 213    | 648                                    | 392       | 1195                                   |           |
| 28  | 19   | 168    | 512                                    | 310       | 943                                    |           |
| 28  | 22   | 145    | 442                                    | 267       | 814                                    |           |
| 28  | 24   | 133    | 360                                    | 218       | 663                                    |           |

**NOTE:** To obtain Kg / ha X spacing, see the conversion of g / 20m with the corresponding value to be applied in Table 1.

**TABLE 4**

● **TABLE: Pre-fertilization aid**

| <b>TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN Kg / Ha x SPACING BETWEEN LINES x GRAMS IN 20 LINEAR METERS PERIMETER WHEELED 1.81m</b><br><b>Seeder Fertilizer PA PANTOGRÁFICA</b> |              |      |     |     |     |     |     |     |     |     |      |      |
|---|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| Kg / Ha   | LINE SPACING |      |     |     |     |     |     |     |     |     |      |      |
|   | 40           | 42,5 | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85   | 90   |
| 50  | 40           | 42   | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85   | 90   |
| 75  | 60           | 64   | 67  | 75  | 83  | 90  | 98  | 105 | 113 | 120 | 128  | 135  |
| 100   | 80           | 85   | 90  | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170  | 180  |
| 125   | 100          | 106  | 112 | 125 | 138 | 150 | 163 | 175 | 188 | 200 | 213  | 225  |
| 150   | 120          | 127  | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 255  | 270  |
| 175   | 140          | 149  | 157 | 175 | 193 | 210 | 228 | 245 | 263 | 280 | 298  | 315  |
| 200   | 160          | 170  | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340  | 360  |
| 225   | 180          | 191  | 202 | 225 | 248 | 270 | 293 | 315 | 338 | 360 | 383  | 405  |
| 250   | 200          | 213  | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425  | 450  |
| 275   | 220          | 234  | 245 | 275 | 303 | 330 | 358 | 385 | 413 | 440 | 468  | 495  |
| 300   | 240          | 255  | 270 | 300 | 330 | 360 | 390 | 420 | 450 | 480 | 510  | 540  |
| 325   | 260          | 276  | 292 | 325 | 358 | 390 | 423 | 455 | 488 | 520 | 553  | 585  |
| 350   | 280          | 298  | 315 | 350 | 385 | 420 | 455 | 490 | 525 | 560 | 595  | 630  |
| 375   | 300          | 319  | 337 | 375 | 413 | 450 | 488 | 525 | 563 | 600 | 638  | 675  |
| 400   | 320          | 340  | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 680  | 720  |
| 425   | 340          | 361  | 383 | 425 | 468 | 510 | 553 | 595 | 638 | 680 | 723  | 765  |
| 450   | 360          | 383  | 405 | 450 | 495 | 540 | 585 | 630 | 675 | 720 | 765  | 810  |
| 475   | 380          | 404  | 428 | 475 | 523 | 570 | 618 | 665 | 713 | 760 | 808  | 855  |
| 500   | 400          | 425  | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850  | 900  |
| 525   | 420          | 446  | 472 | 525 | 578 | 630 | 683 | 735 | 788 | 840 | 893  | 945  |
| 550   | 440          | 468  | 495 | 550 | 605 | 660 | 715 | 770 | 825 | 880 | 935  | 990  |
| 575   | 460          | 489  | 518 | 575 | 633 | 690 | 748 | 805 | 863 | 920 | 978  | 1035 |
| 600   | 480          | 510  | 540 | 600 | 660 | 720 | 780 | 840 | 900 | 960 | 1020 | 1080 |

**TABLE 1 NOTE:** For the combination of sprockets and thread pitch option (1 "or 2"), see Table 2.

**TABLE 5**

### 12.5.2 - Adjusting the distribution system with Spindle meter

The replacement of the drive sprockets (B) (fig. 11) with the driven ones (C), and drive ones (D) with the driven ones (E) is what drives the shaft (F) by adjusting the amount of fertilizer in kg/ha which will be displaced by means of the spindle (A).

To adjust the fertilizer distribution according to the desired amount, check the number of teeth of the drive and driven sprockets, as specified in TABLE 6 (pag. 56). Check if the amount actually obtained is the one desired. If it is not, change the gear ratio by replacing the sprockets. To do this, loosen the bolt (G) (fig. 11) of the tensioner (H) and remove the locking pin (I). Replace them, install the locking pin (I) and re-tighten the bolt (G) of the tensioner (H). Check the amount again.

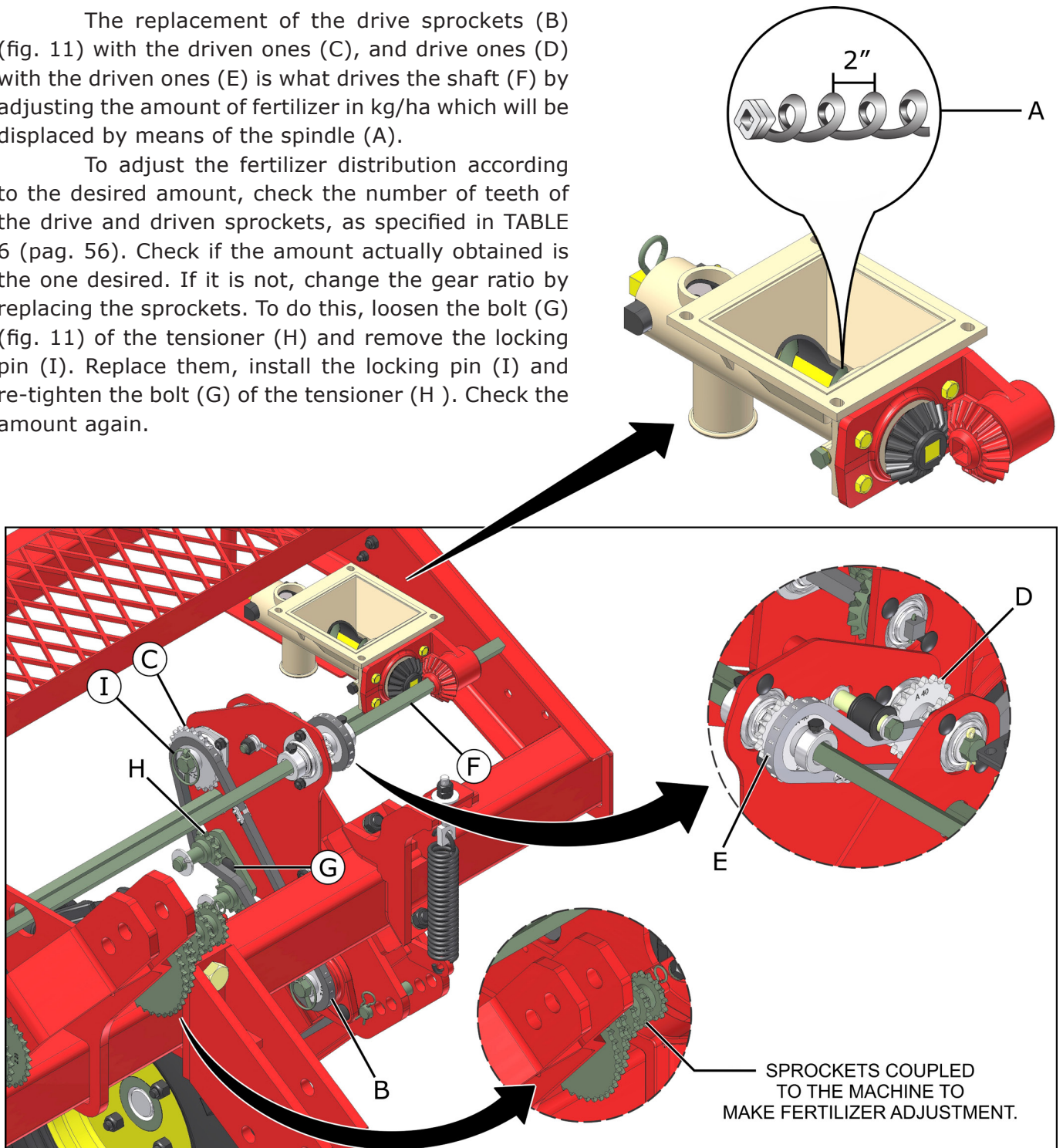
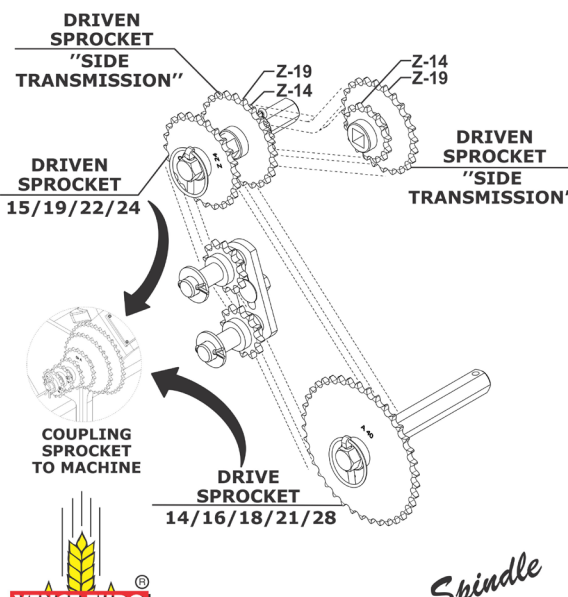


fig. 11

● **TABLE: Adjustment of fertilizer distribution (Spindler)**

| <b>FERTILIZER TRANSMISSION</b><br><br> | <b>TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN GRAMS BY 20 LINEAR METERS (11 TURN OF THE DRIVE WHEEL) THROUGH THE COMBINATION OF TOUGH WHEELS PERIMETER WHEELED 1.81m</b><br><b>SEEDER FERTILIZER PA PANTOGRÁFICA</b> |        |  |           |  |           |
|---|--|--------|--|-----------|--|-----------|
|   | COMBINATION SPROCKETS  |        | SIDE TRANSMISSION DRIVE 14 x 19 DRIVEN |           | SIDE TRANSMISSION DRIVE 19 x 14 DRIVEN |           |
|   | DRIVE  | DRIVEN | THREAD 1"                              | THREAD 2" | THREAD 1"                              | THREAD 2" |
|   |  | g/20m  |  | g/20m     |  |           |
| 14  | 15   | 101    | 227                                    | 184       | 418                                    |           |
| 14  | 19   | 80     | 179                                    | 145       | 330                                    |           |
| 14  | 22   | 69     | 155                                    | 125       | 285                                    |           |
| 14  | 24   | 56     | 126                                    | 102       | 232                                    |           |
| 16  | 15   | 116    | 260                                    | 210       | 478                                    |           |
| 16  | 19   | 92     | 205                                    | 166       | 377                                    |           |
| 16  | 22   | 79     | 177                                    | 143       | 326                                    |           |
| 16  | 24   | 65     | 144                                    | 117       | 265                                    |           |
| 18  | 15   | 131    | 292                                    | 236       | 537                                    |           |
| 18  | 19   | 103    | 230                                    | 187       | 424                                    |           |
| 18  | 22   | 89     | 199                                    | 161       | 366                                    |           |
| 18  | 24   | 73     | 162                                    | 131       | 299                                    |           |
| 21  | 15   | 152    | 340                                    | 276       | 627                                    |           |
| 21  | 19   | 120    | 269                                    | 218       | 495                                    |           |
| 21  | 22   | 104    | 232                                    | 188       | 427                                    |           |
| 21  | 24   | 85     | 189                                    | 153       | 348                                    |           |
| 28  | 15   | 203    | 454                                    | 368       | 836                                    |           |
| 28  | 19   | 160    | 359                                    | 291       | 660                                    |           |
| 28  | 22   | 138    | 310                                    | 251       | 570                                    |           |
| 28  | 24   | 113    | 252                                    | 204       | 464                                    |           |

**NOTE:** To obtain Kg / ha X spacing, see the conversion of g / 20m with the corresponding value to be applied in Table 1.

**TABLE 6**

● **TABLE: Pre-fertilization aid**

| <b>TABLE FOR AID IN PRIOR ADJUSTMENT OF FERTILIZER IN Kg / Ha x SPACING BETWEEN LINES x GRAMS IN 20 LINEAR METERS PERIMETER WHEELED 1.81m</b><br><b>Seeder Fertilizer PA PANTOGRÁFICA</b> |              |      |     |     |     |     |     |     |     |     |      |      |
|---|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| Kg / Ha   | LINE SPACING |      |     |     |     |     |     |     |     |     |      |      |
|   | 40           | 42,5 | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85   | 90   |
| 50  | 40           | 42   | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85   | 90   |
| 75  | 60           | 64   | 67  | 75  | 83  | 90  | 98  | 105 | 113 | 120 | 128  | 135  |
| 100   | 80           | 85   | 90  | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170  | 180  |
| 125   | 100          | 106  | 112 | 125 | 138 | 150 | 163 | 175 | 188 | 200 | 213  | 225  |
| 150   | 120          | 127  | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 255  | 270  |
| 175   | 140          | 149  | 157 | 175 | 193 | 210 | 228 | 245 | 263 | 280 | 298  | 315  |
| 200   | 160          | 170  | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340  | 360  |
| 225   | 180          | 191  | 202 | 225 | 248 | 270 | 293 | 315 | 338 | 360 | 383  | 405  |
| 250   | 200          | 213  | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425  | 450  |
| 275   | 220          | 234  | 245 | 275 | 303 | 330 | 358 | 385 | 413 | 440 | 468  | 495  |
| 300   | 240          | 255  | 270 | 300 | 330 | 360 | 390 | 420 | 450 | 480 | 510  | 540  |
| 325   | 260          | 276  | 292 | 325 | 358 | 390 | 423 | 455 | 488 | 520 | 553  | 585  |
| 350   | 280          | 298  | 315 | 350 | 385 | 420 | 455 | 490 | 525 | 560 | 595  | 630  |
| 375   | 300          | 319  | 337 | 375 | 413 | 450 | 488 | 525 | 563 | 600 | 638  | 675  |
| 400   | 320          | 340  | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 680  | 720  |
| 425   | 340          | 361  | 383 | 425 | 468 | 510 | 553 | 595 | 638 | 680 | 723  | 765  |
| 450   | 360          | 383  | 405 | 450 | 495 | 540 | 585 | 630 | 675 | 720 | 765  | 810  |
| 475   | 380          | 404  | 428 | 475 | 523 | 570 | 618 | 665 | 713 | 760 | 808  | 855  |
| 500   | 400          | 425  | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850  | 900  |
| 525   | 420          | 446  | 472 | 525 | 578 | 630 | 683 | 735 | 788 | 840 | 893  | 945  |
| 550   | 440          | 468  | 495 | 550 | 605 | 660 | 715 | 770 | 825 | 880 | 935  | 990  |
| 575   | 460          | 489  | 518 | 575 | 633 | 690 | 748 | 805 | 863 | 920 | 978  | 1035 |
| 600   | 480          | 510  | 540 | 600 | 660 | 720 | 780 | 840 | 900 | 960 | 1020 | 1080 |

**TABLE 1 NOTE:** For the combination of sprockets and thread pitch option (1 "or 2"), see Table 2.

**TABLE 7**



### 12.5.3 - Calculation of fertilizer amount according to spacing

For the distribution of fertilizer quantities at different spacings, we suggest a quick calculation where all the data used can be replaced by others of your interest. Just use the following procedure, which contains the following elements:

**EXAMPLE:**

|                                    |              |
|------------------------------------|--------------|
| Amount of fertilizer per hectare   | 200 kg       |
| Spacing between rows (m)           | 0.45 (45 cm) |
| Drive wheel circumference          | 1.76 m       |
| Number of turns of the drive wheel | 10 turns     |
| Grams per row in 10 wheel turns    | X?           |

$$200 \text{ Kg/ha} \frac{\text{_____}}{\text{X}} \frac{10,000 \text{ m}^2}{*7.92 \text{ m}^2} = 1 \text{ ha}$$

\*7.92 m<sup>2</sup> = Number of wheel turns x wheel circumference x spacing.  
 \*7,92 m<sup>2</sup> = 10 x 1.76m x 0.45m

**X = 0.158 Kg/ha**

**0.158 x 1,000 g = 158.4 grams** per line in 10 turns of the drive wheel.

### 12.6- Theoretical calculation: seed and fertilizer distribution

For better determination, proceed as follows:

- 1- Collect the amount of seed or fertilizer in a row after 10 turns of the drive wheel. Use more than one collection point and average for easier weighing;
- 2- Weigh the amounts collected and obtain the averages by lines;

**Note:** This calculation is based on 10 turns of the drive wheel, for the flow check.

**IMPORTANT**

**High working speeds affect the uniformity of seed distribution.**

**Whenever the formulation, batch or fertilizer manufacturer changes, re-measure the quantities.**

### 12.7- Transmission chains

The drive chains are pre-adjusted according to the distance between the shafts of the sprockets. If some maintenance was needed or in case splices (B) (fig. 12) or reductions (A) had to be repaired, remove the cotter pin (C), and remove the number of splices, reductions or loose links.

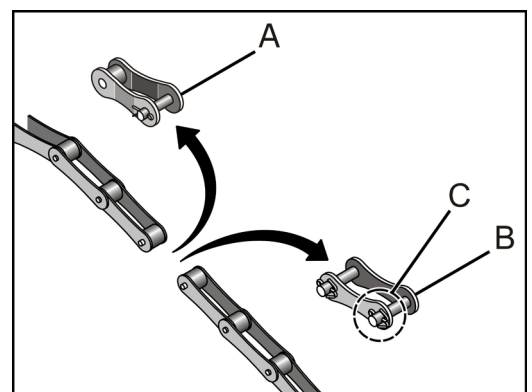


fig. 12

## 12.8- Seeding assemblies

### 12.8.1 - Mobile furrower

This planting assembly, called by us "PULA PEDRA" (STONE JUMP), was developed in a pioneering way by VENCE TUDO LTDA, to supply the need for planting in stony soils.

This mechanism is based on a set where cutting disc and the furrower are fixed in the same device, enabling the cutting disc to overlap an obstacle during the movement of the seeder. The furrower is withdrawn from the ground by means of a lever formed by the system, so that after the obstacle has been overcome by the cutting disc, the furrower automatically returns to its original working position without breaking its safety fuse.

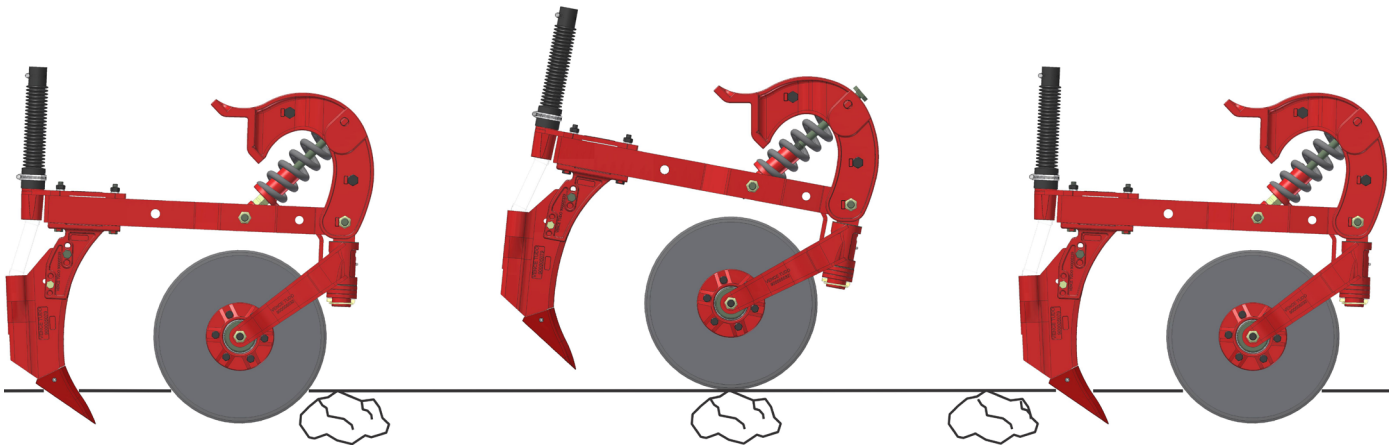


fig. 13

### 12.8.2 - Depth and position of the fertilizer furrower and cutting disc height

The furrower position can be adjusted vertically. To do this, simply release the furrower knife (A) (fig. 14) and change the furrow depth by changing the position of the bolts (B).

The position of the cutting disc (C) (fig. 14) can also be adjusted vertically. To do this, it is necessary to remove the locking pin (D) and change the height of the cutting disc by changing the position of the washers (E).

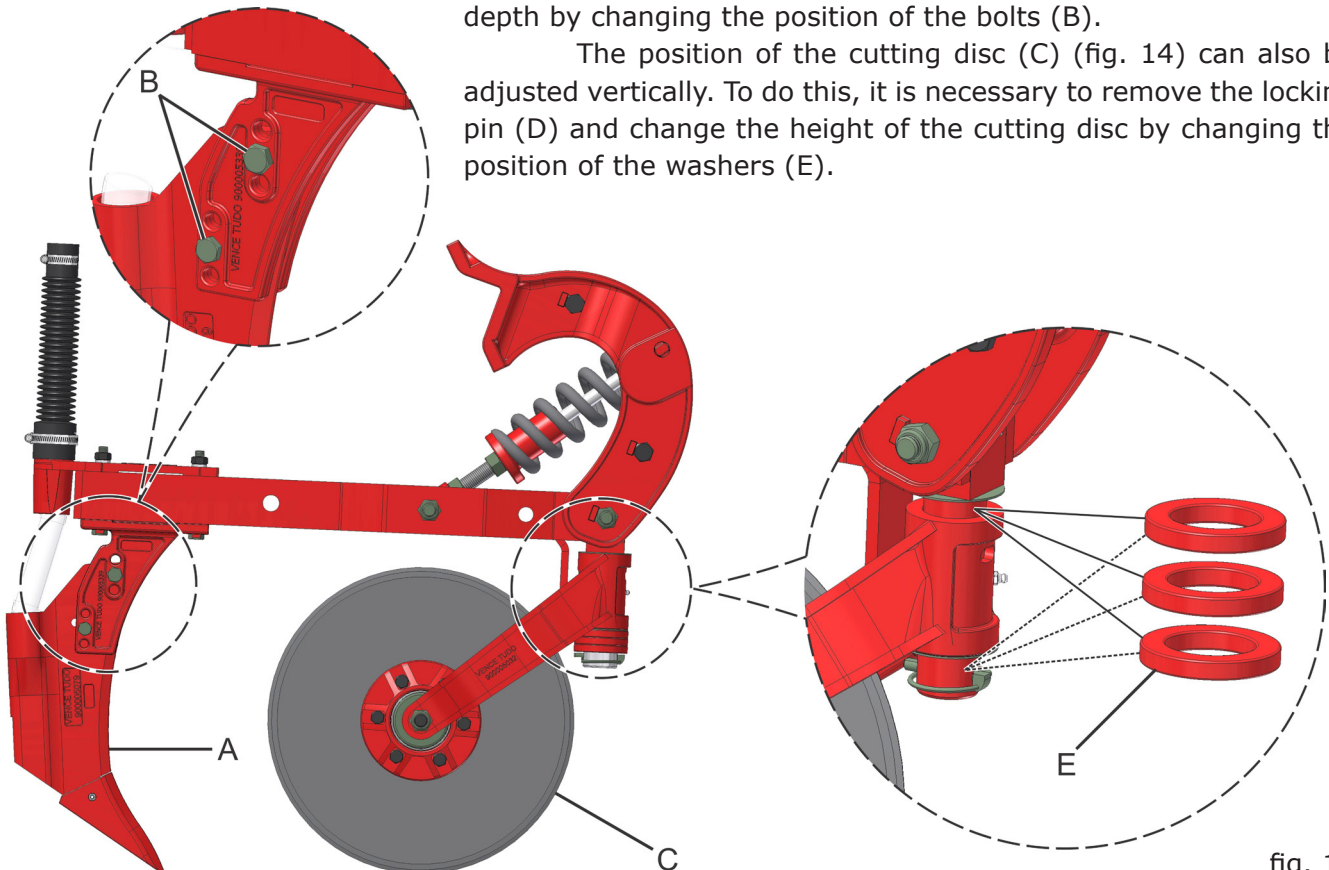


fig. 14

### 12.8.3 - Double discs for fertilizer

It was developed with the purpose of making a "V" furrow for the deposition of fertilizers in light and well drained soils.

Made up of a set of 13 and 14 inch offset double discs, mounted in interchangeable structure fastened by bolts (A) (fig. 15) in the furrowing row (B).

For greater penetration and depth of the fertilizer, suspend the seeder and move the guide (C) (fig. 15) of the coil spring (D).

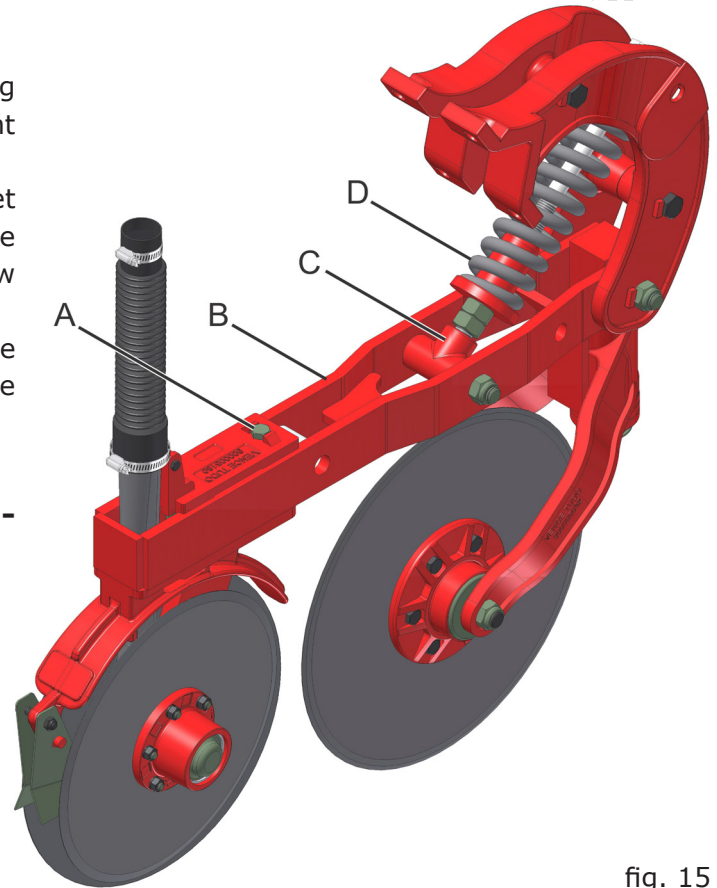


fig. 15

### 12.8.4 - Adjusting the inner cleaner of double fertilizer discs

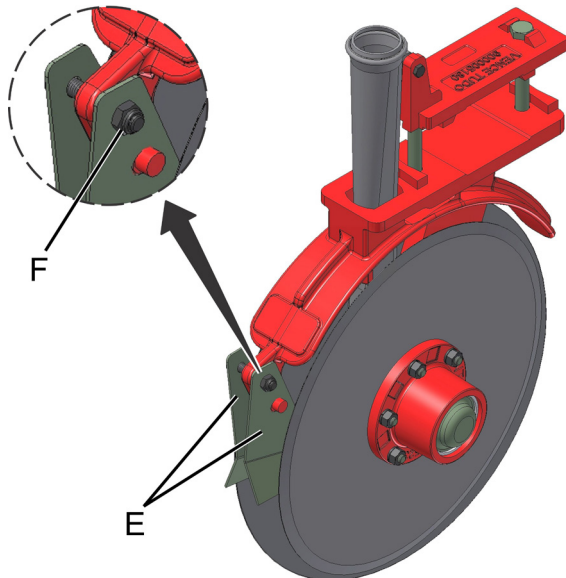


fig. 16

Periodically adjust the cleaners (E) (fig. 16) of the offset double discs. To adjust the cleaners, tighten the bolt and nut (F). Adjust so that you maintain cleaning efficiency. Do not overtighten to avoid excessive wear on the cleaners (E).

### 12.8.5 - Depth of cutting and fertilizer furrower

The depth of the cutting disc is determined by the increase in the spring pressure (A) (Fig. 17), which can be adjusted by means of an appropriate key by moving the guide (B), being locked by means of the nuts (C). Note that the adjusted measurement should be the same for all the springs of the lines.

#### **IMPORTANT**

**Always work at the recommended depths for culture.**

**When planting soybeans and corn, the distribution of fertilizer and seeds is done in the same planting row. With this, a distance between the seed and the fertilizer of approximately 5 cm in depth should be observed, so that it does not cause problems during germination.**

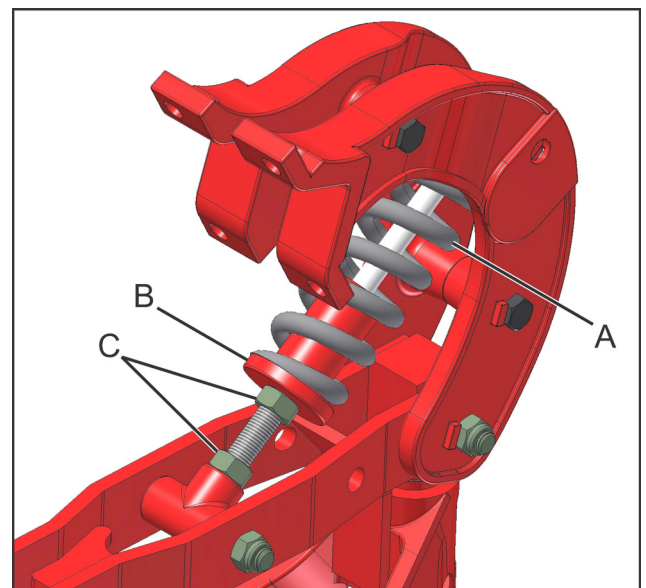


fig. 17

### 12.8.6 - Amplitude and spring pressure adjustment

To adjust the spring pressure, in order to obtain greater amplitude (height oscillation) of the double seed discs, suspend the seeder to facilitate the operation. Then, move down lever (A) (Fig. 18) and position the lock (B) according to the desired amplitude and pressure. For both sides of the line to operate at equal pressure, the pressure setting must be the same on both sides.

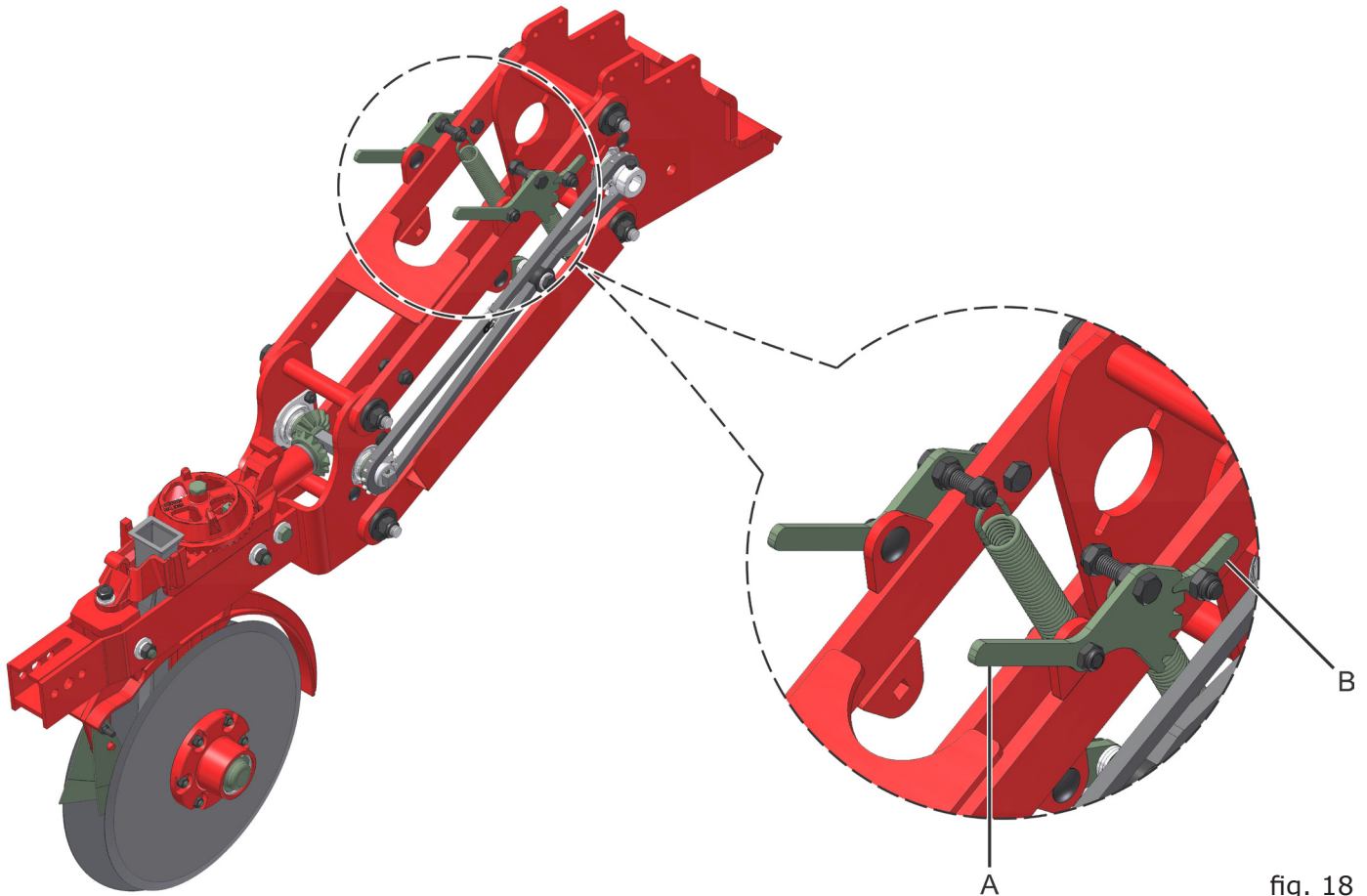


fig. 18

### 12.8.7 - Adjusting the inner cleaner of double seed discs

Periodically adjust the cleaners (A) (fig. 19) of the offset double discs. To adjust the cleaners, tighten the bolt and nut (B). Adjust so that you maintain cleaning efficiency. Do not overtighten to avoid excessive wear on the cleaners (A).

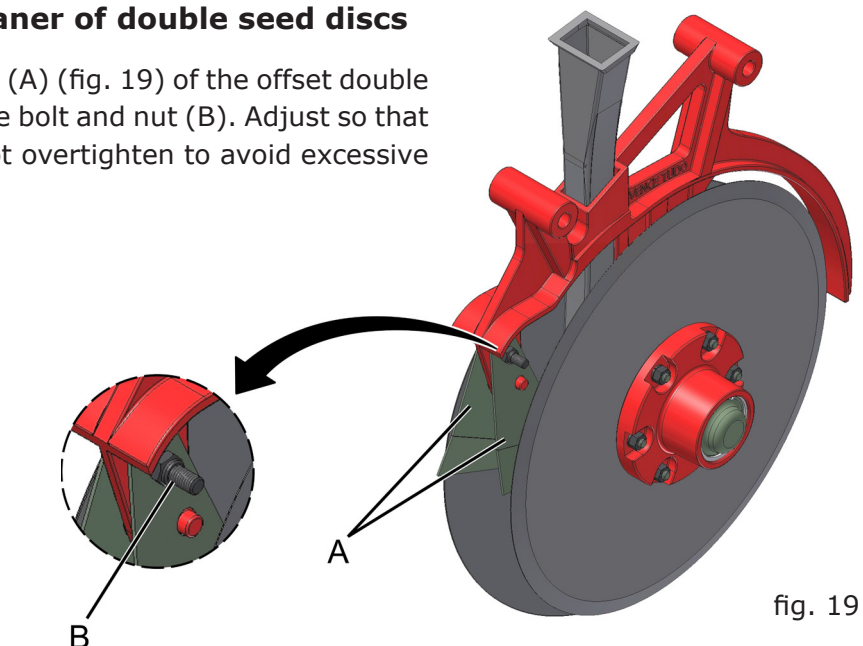


fig. 19

### 12.8.8 - Depth limiting system

The limiting wheels follow the irregularities of the terrain, which allows to maintain great depth uniformity. The wheel set is strategically positioned, just behind the offset double discs of the seed. In addition to the limiting function, the "V" -shaped wheels replace the removed straw and lateral compaction in the seeds, avoiding the formation of pockets of air in the furrow. The limiting wheels have the function of bringing back the earth that the furrowing knife and the double disc of the seed removed.

There are three models of optional limiters available. These are:

- Independent "V" limiter with "V" scale;
- Fixed "V" limiter with "V" scale;
- Premium limiter.

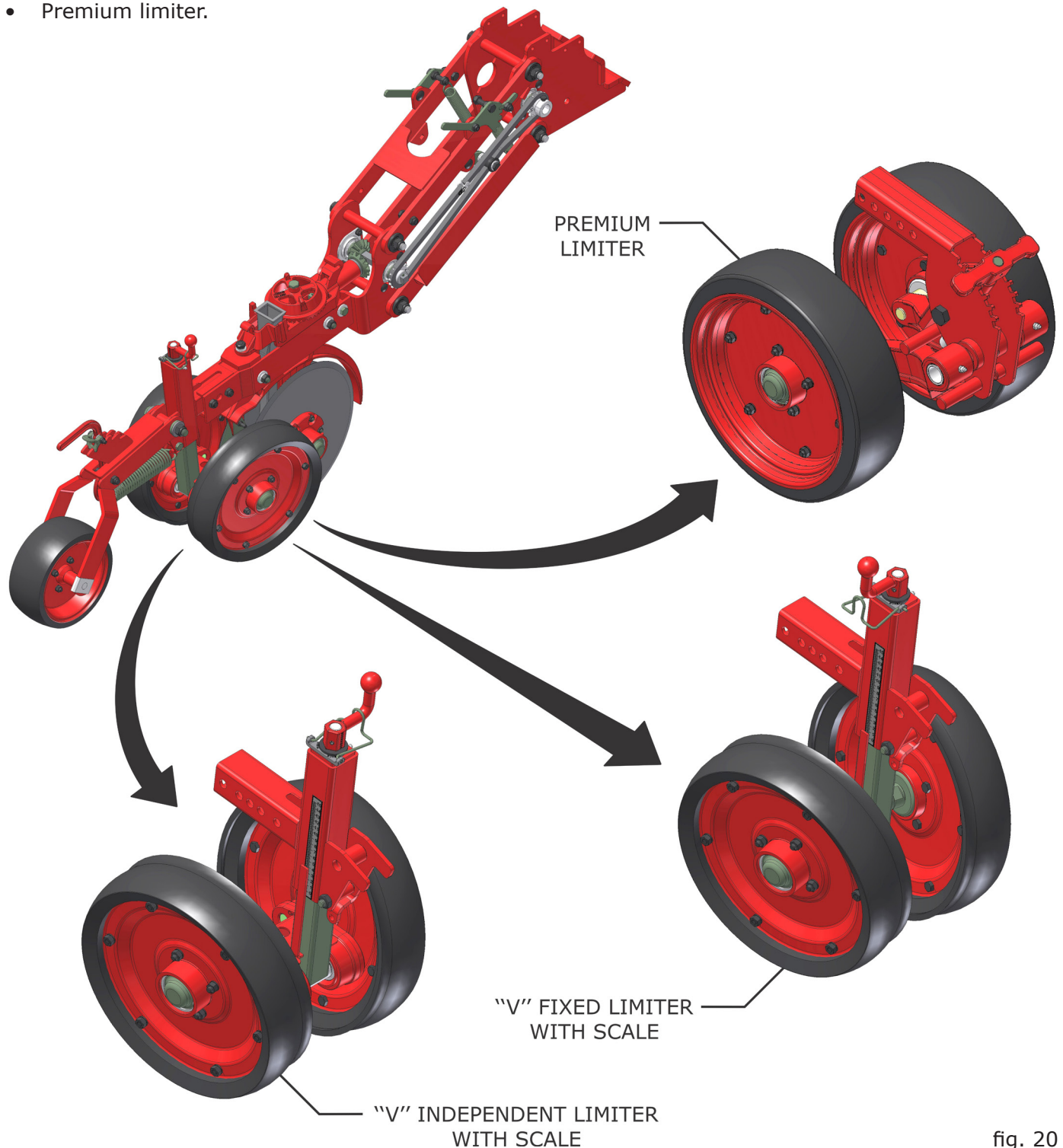


fig. 20

### 12.8.8.1 - "V" Limiter adjustment with scale: independent and fixed

In each planting unit, the desired height adjustment of the depth limiter wheels must be made as follows:

- 1- Suspend the soil planting units to lighten the weight on the limiting wheels;
- 2- Relieve the lock spring (A) (fig. 21 and 22) and turn the knob (B) to the desired height on the indicator scale (C). Note that in all planting units, the scale indicator is in the same position;
- 3- Lock the knob again with the lock spring (A). For your guidance, the depth limits in relation to the double discs are from 0.2 in (minimum) to 5.5 in (maximum).

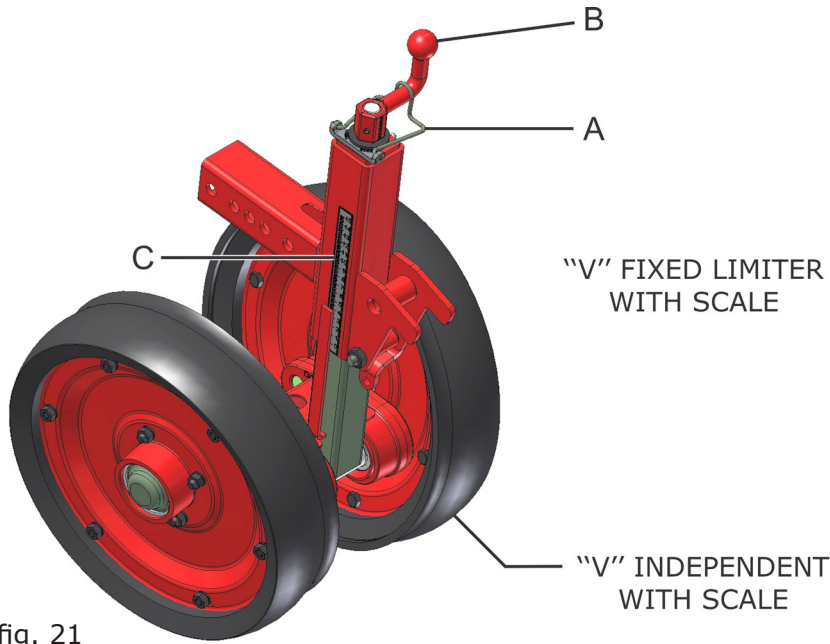


fig. 21

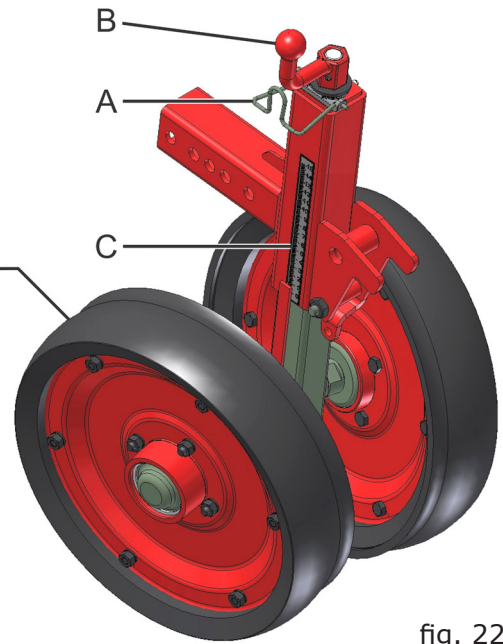


fig. 22

### 12.8.8.2 - Adjusting the premium limiter

To adjust the depth limiter wheels, suspend the seeder to facilitate such adjustment. Then adjust by means of knob (A) (fig. 23), considering that each position allows an adjustment of 0.4 in 0.4 in.

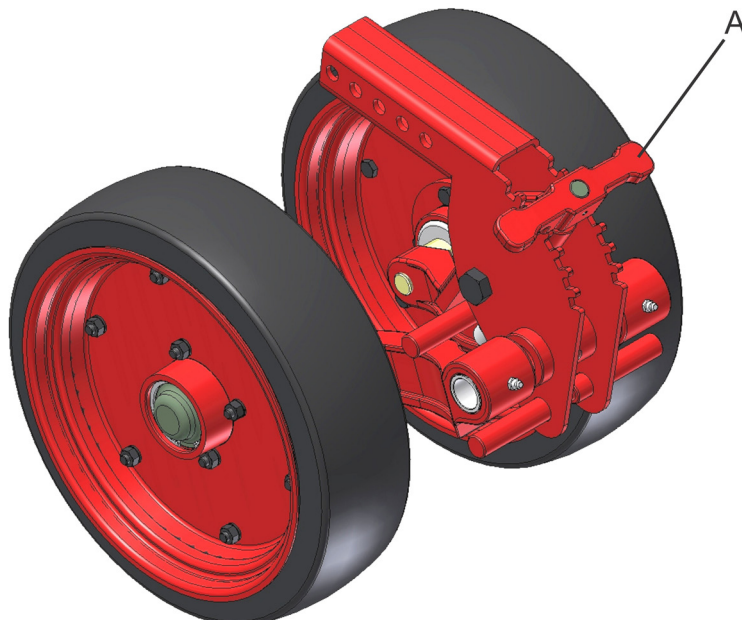


fig. 23

### 12.8.9 - Compaction system

There are three optional compaction models available, the "V" compaction strip (fig. 24) and 3<sup>rd</sup> compaction wheel (fig. 25) specific for coupling to the independent and fixed "V" limiters, and the Premium compactor (fig. 26) specific to couple in the Premium limiter.

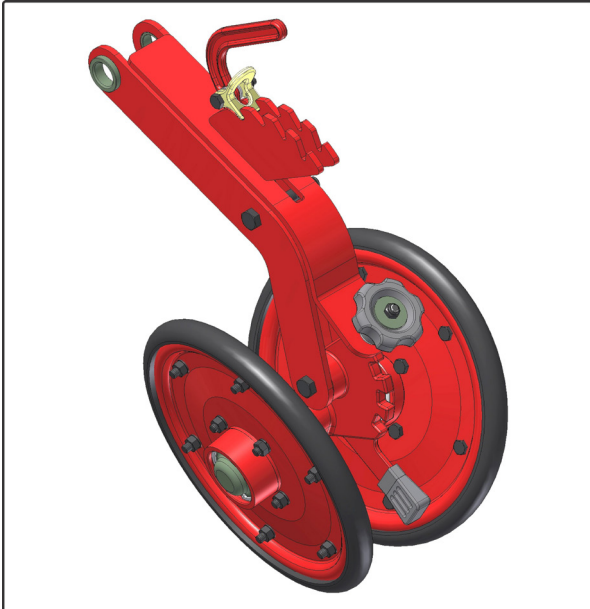


fig. 24

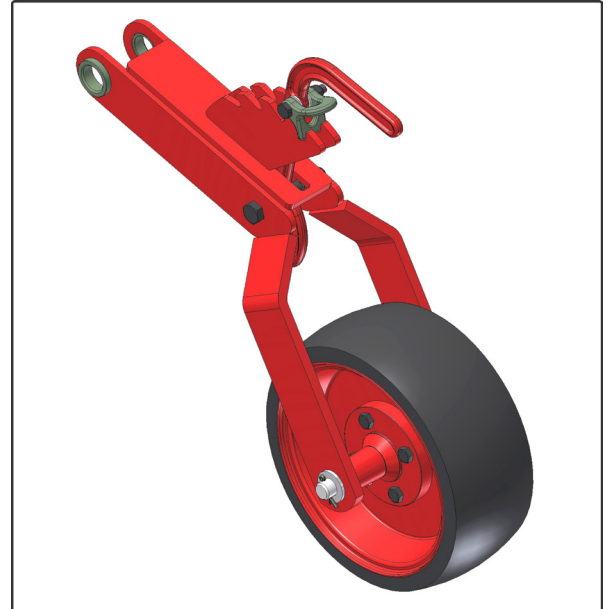


fig. 25

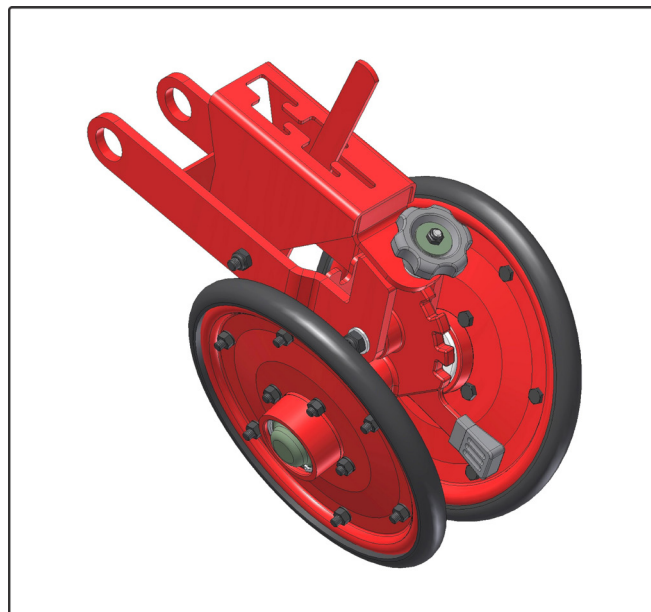


fig. 26



### 12.8.9.1 - Adjusting the compaction: 3<sup>rd</sup> compaction wheel

To adjust the pressure of the compaction wheel, adjust the spring pressure (A) (fig. 27) move the lever (B). The higher the spring pressure, the greater the pressure exerted under the seed.

Always check this adjustment, since the conditions of the soil, humidity, straw and, change of the planting area, among others, may cause it to vary, and should be adjusted according to each situation.

#### **IMPORTANT**

**Make sure that the lever (A) (fig. 27) is in the same position in all planting units.**

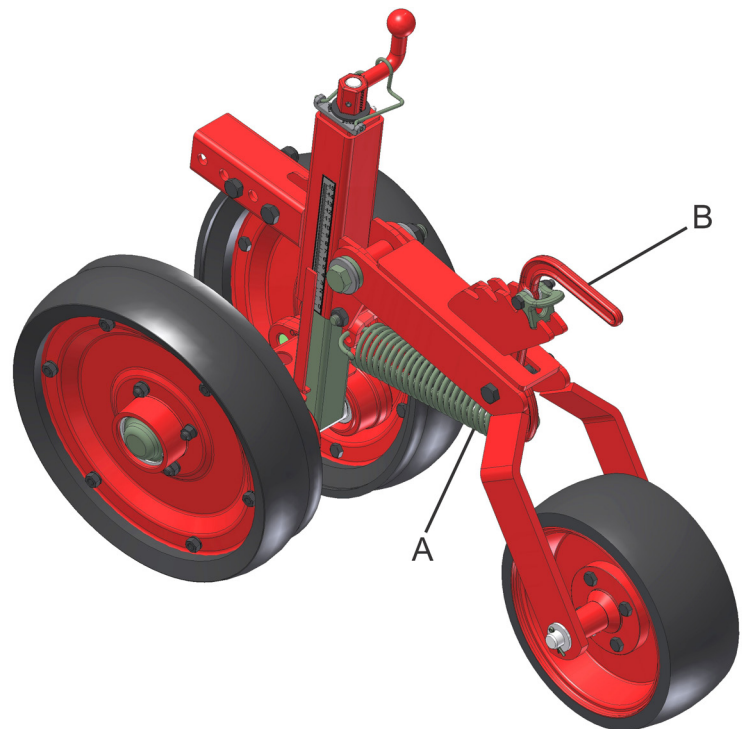


fig. 27

### 12.8.9.2 - Adjusting the compaction: "V" compaction strip

The "V" compaction strips (A) (fig. 28), perform soil pressure laterally on the seed and work with various adjustment options such as pressure and opening angle of the seed.

To make adjustments of these, always consider the variables such as soil conditions, humidity, straw and change of the planting area among others, always making regulation checks before beginning the planting.

To adjust the pressure of the "V" compaction strips (A), adjust the spring pressure (B) by moving the lever (C), taking into account that the higher the spring pressure (B), the higher the pressure exerted on the seed.

To adjust the opening angle between the "V" compaction strip (A), pull the handle (D) by changing the position of the adjuster (E), allowing the spacing or approach of compaction in relation to the furrow of the seeds.

#### **IMPORTANT**

**Make sure that the lever (C) (fig. 28) and adjuster (E) are in the same position in all planting units.**

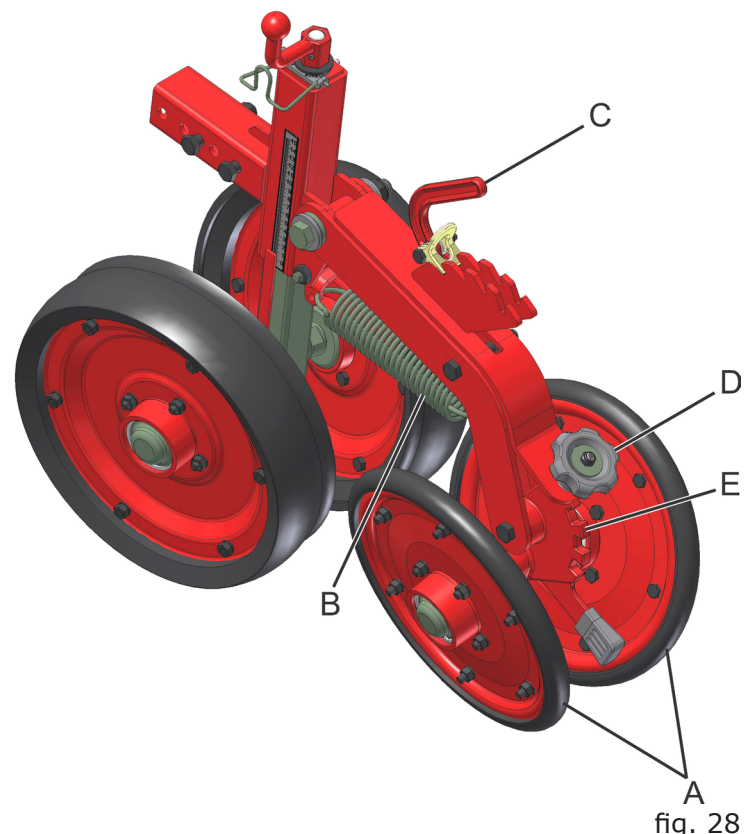


fig. 28



### 12.8.9.3 - Adjusting the compaction: premium compactor

The compaction wheels (A) (fig. 29) perform soil pressure laterally on the seed and work with several of its adjustment options such as pressure and opening angle.

To make adjustments of these, always consider the variables such as soil conditions, humidity, straw and change of the planting area among others, always making regulation checks before beginning the planting.

To adjust the pressure of the compaction wheels (A), adjust the spring pressure (B) by moving the lever (C), taking into account that the higher the spring pressure (B), the higher the pressure exerted on the seed.

To adjust the opening angle between the compaction wheels (A), pull the handle (D) by changing the position of the adjuster (E), allowing the spacing or approach of compaction to the furrow of the seeds.

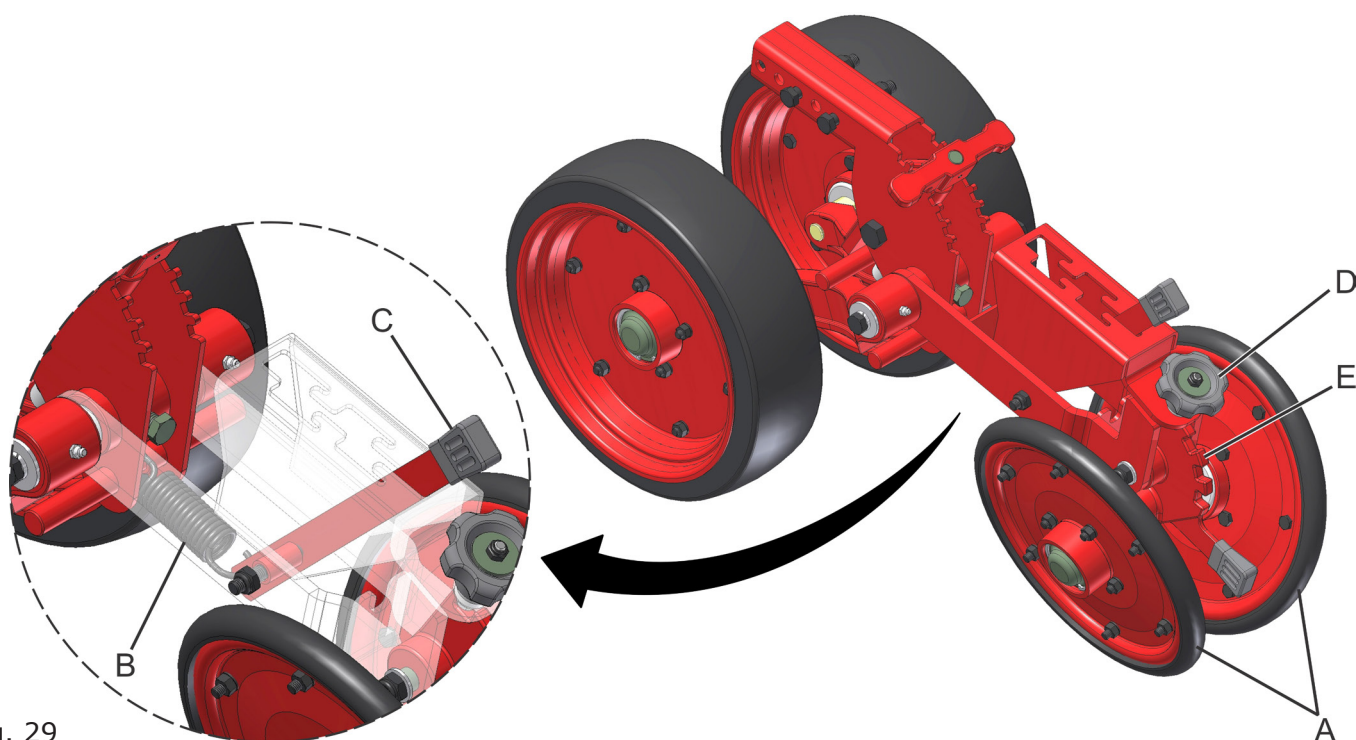


fig. 29

#### **IMPORTANT**

**Make sure that the lever (C) (fig. 29) and adjuster (D) are in the same position in all planting units.**

### 12.8.10 - Planting height adjustment and oscillation

The seeder has an exclusive system with articulated wheels, which allow the planting to be carried out on uneven ground.

This adjustment allows you to adjust the height of the seeder relative to the ground surface by changing the position of the stop (A) (fig. 30). Considering that by lowering its position the seeder will work closer to the surface of the soil, the working pressure on the planting units will increase and consequently the depth.

The different positions of the seeder in relation to the ground surface also affect the working pressure on the drive wheels. The pressure can be adjusted by means of the nuts (B) (fig. 30) of the tensioner, so that by tightening it, a higher pressure is obtained in the spring (C), thus increasing wheel contact with the ground, ensuring traction and the rotation of the transmission system.

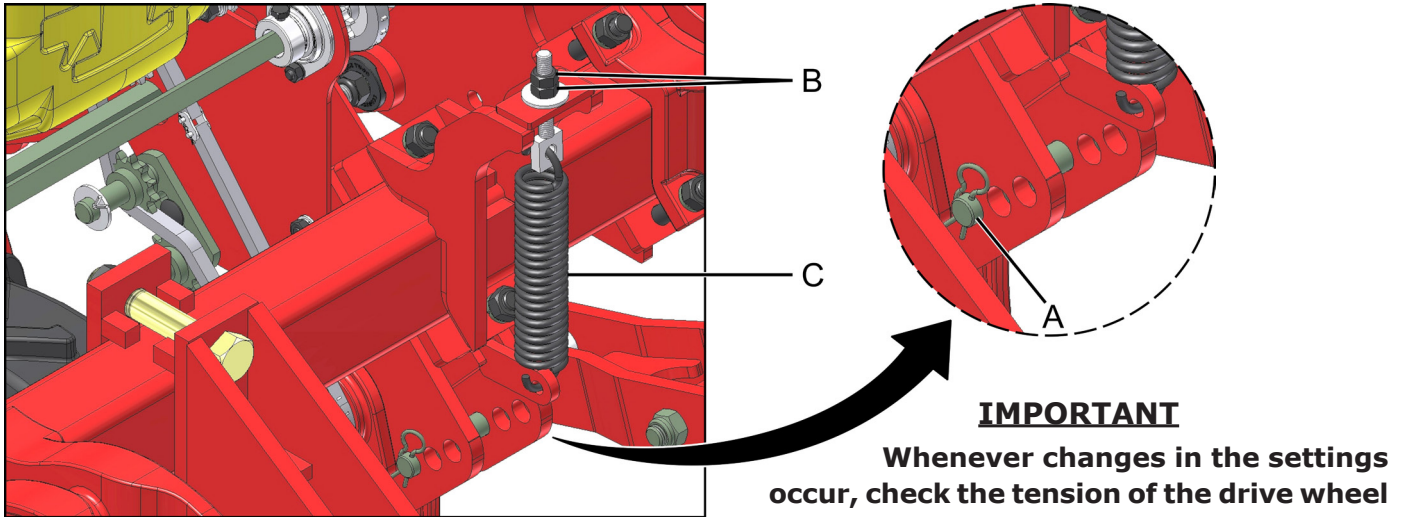


fig. 30

**12.8.10.1 - Tire replacement**

To replace tires, follow these instructions:

- 1- Engage the seeder on the 3-points hitch of the tractor;
- 2- Remove the safeguard (A) (fig. 31) on the left hand side wheel;
- 3- Loosen the bolts (B) (fig. 31) and nuts (C) which attach the wheel (D) to the hub (E);
- 4- Remove chain (F) (fig. 31) of the transmission wheel. Then also remove its tensor (G);
- 5- Suspend the seeder by removing the bolts (B), nuts (C) and the wheel (D);
- 6- Carry out the tire replacement and after that, assemble all the components back.

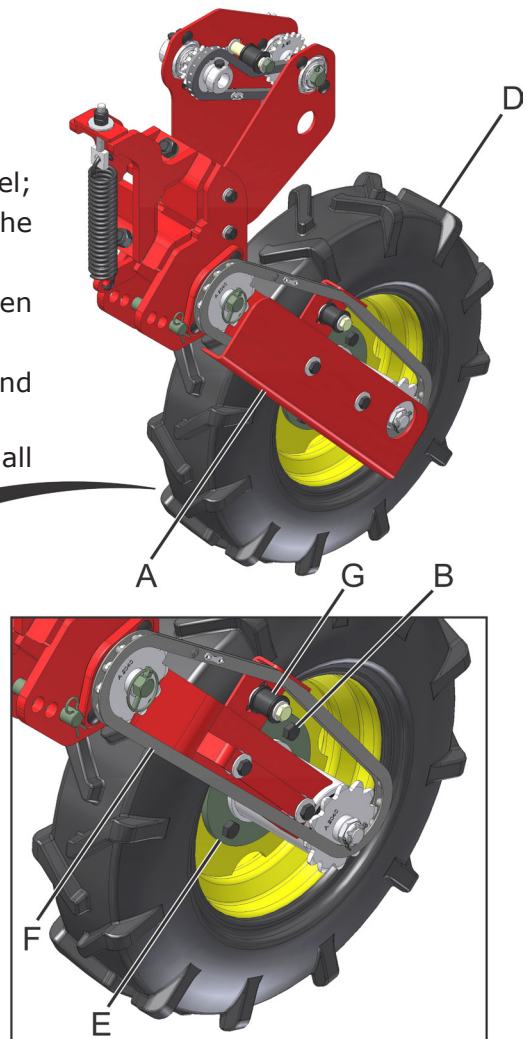


fig. 31

## 12.9- Optionals assemblies

### 12.9.1- Hydraulic row marker

The use of row markers helps the work and operation of the seeder, making them practical and comfortable, as they allow uniform spacing to be achieved by facilitating crop handling and harvesting.

This type of row marker consists of a copying spring system (A) (Fig. 32), which has pressure regulation by means of nut (B), which allows a uniform reading and easy adjustment in the most varied types of soil.

When transporting, servicing or storing the seeder, keep the marker arm (C) (fig. 32) fitted to the pin (D) of the support (E) and secured thereto by means of the washers (F) and locking pin (G).

When starting the planting operation, unlock the marker arm (C) (fig. 32) of the support (E). To do this, remove the locking pin (G) and washers (F).

It is permissible to make wide adjustments to the marker discs (H) (fig. 32) at an angle and distance from it in relation to the seeder. To adjust the angle, in order to determine the depth of the desired marking on the ground, remove the bolt (I) and adjust the marker disc (H) in one of the holes (J) according to the desired depth.

To adjust the distance of the marker discs (H) (fig. 32), loosen the bolts (K) moving the arm (L) up or down, depending on the distance required.

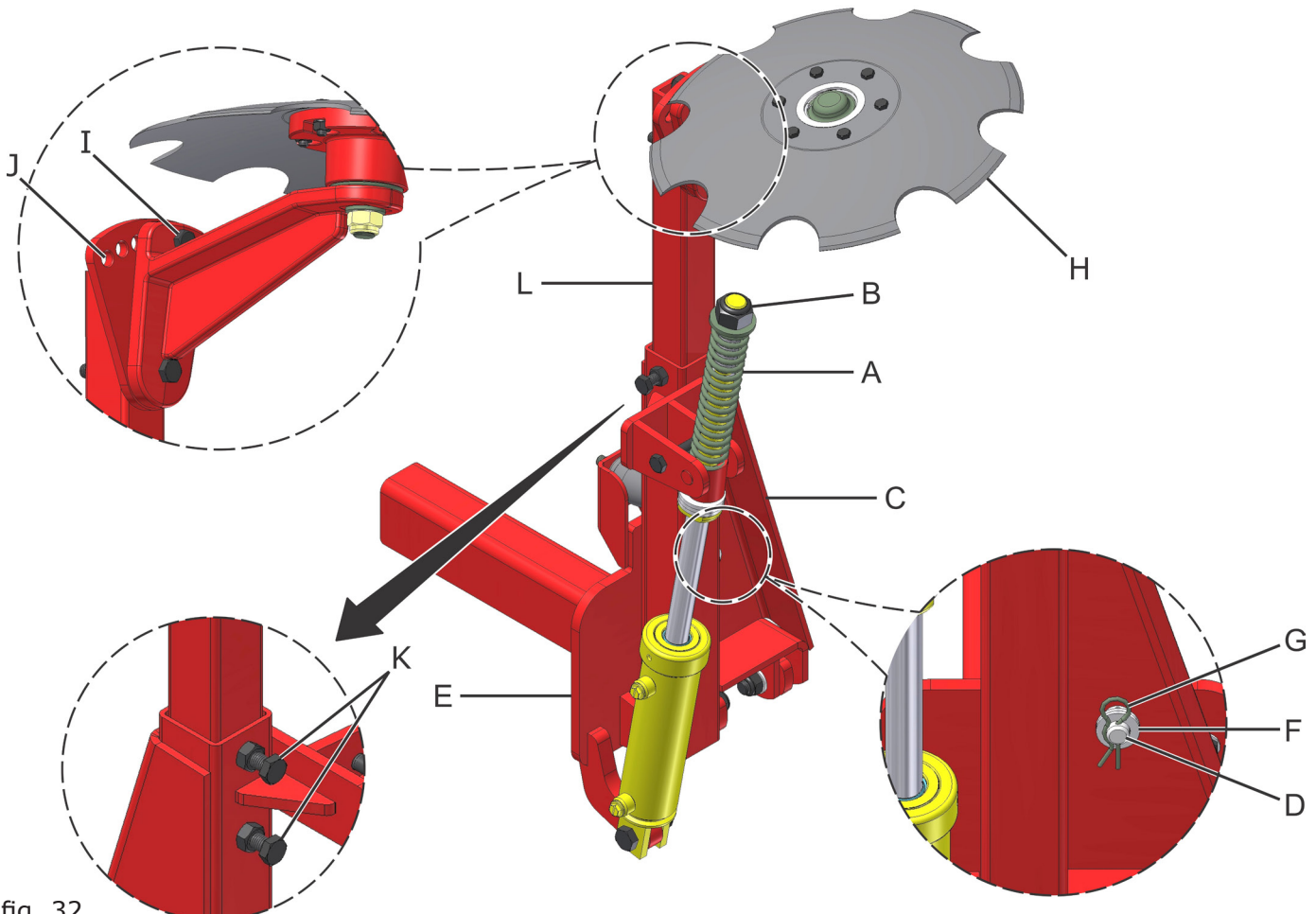
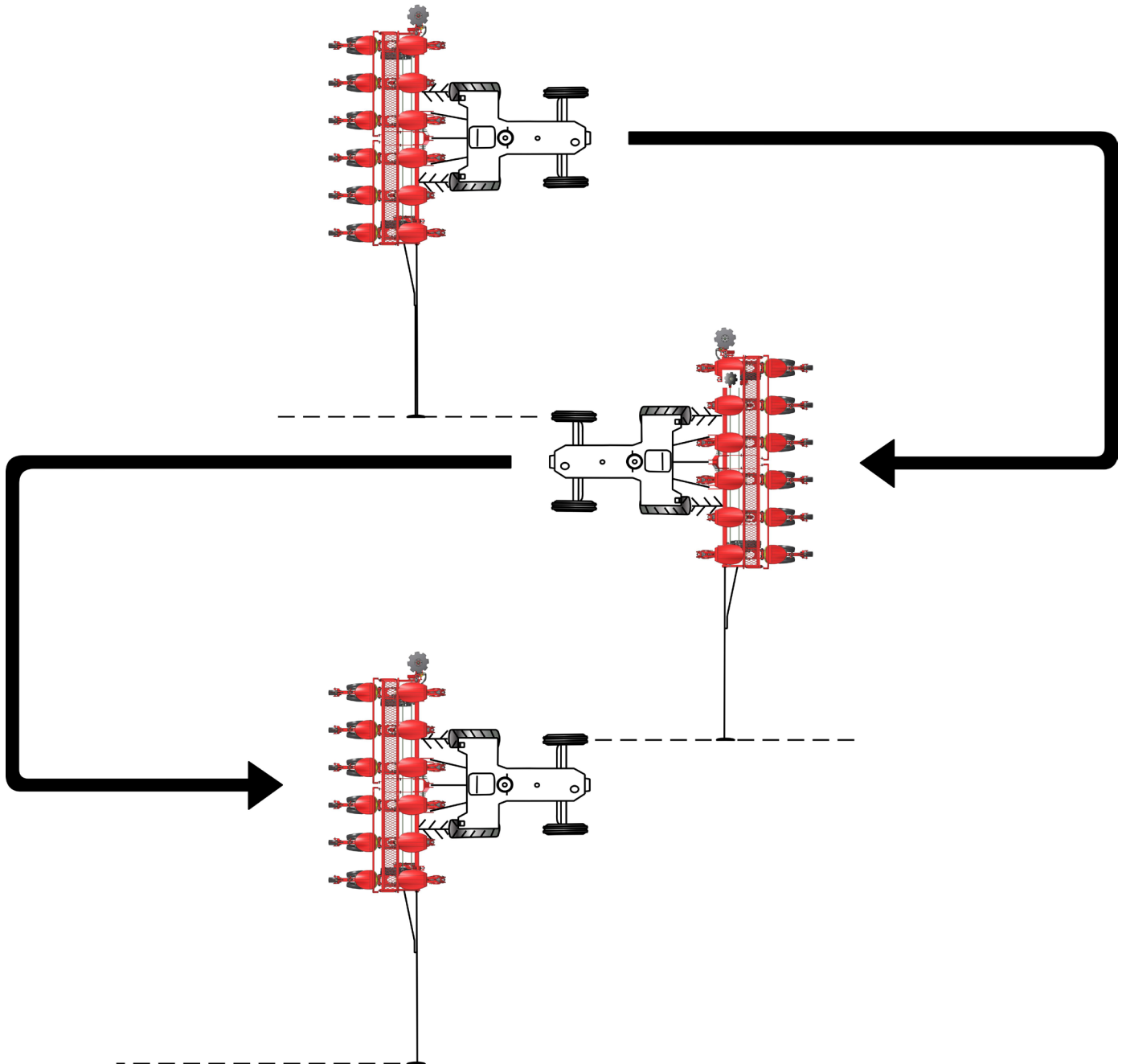


fig. 32

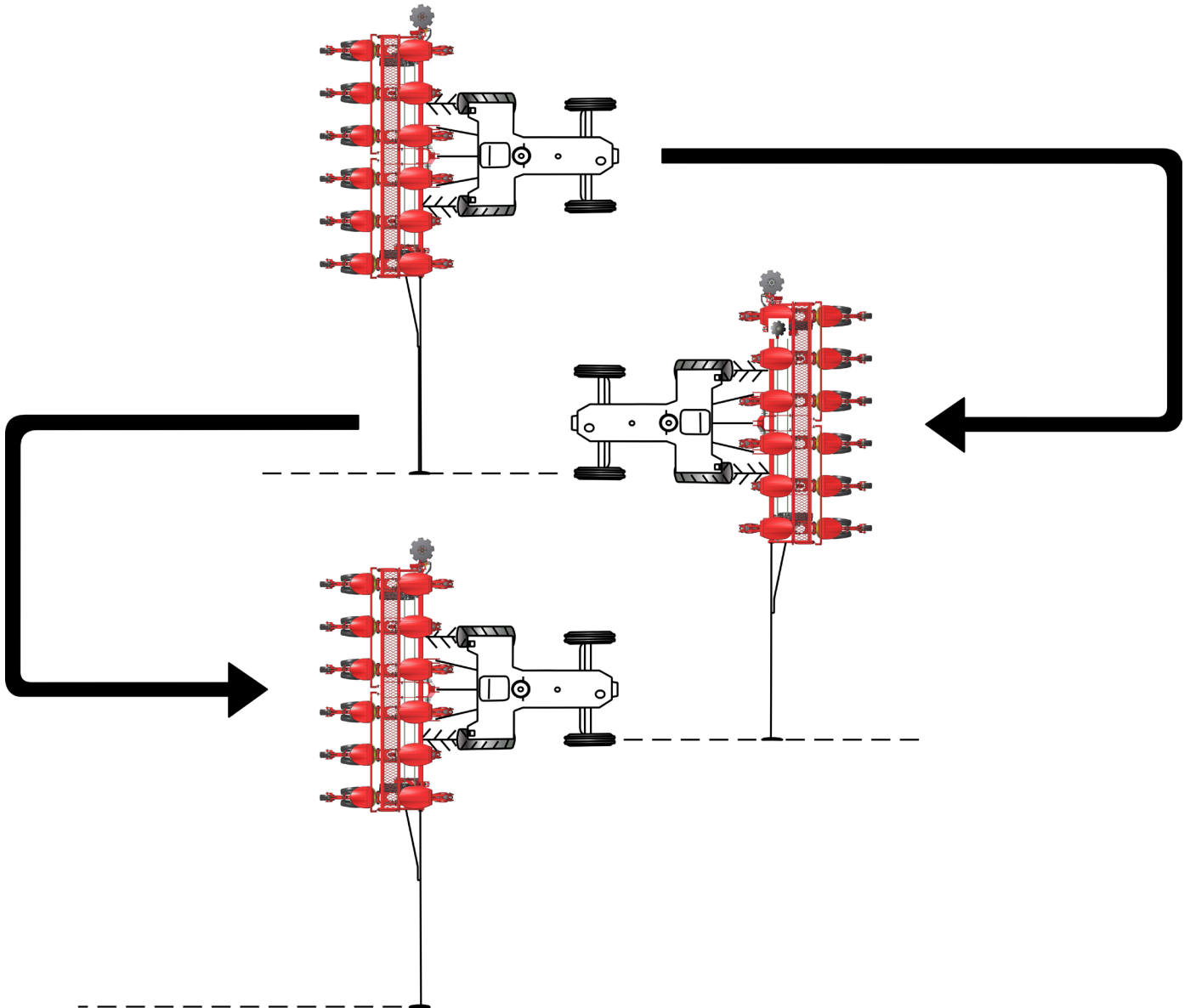
Check the following two ways to regulate the required distance:

**OPTION 1:** Adjust the arm and marker disc distance by marking the front tire of the tractor on the inside.

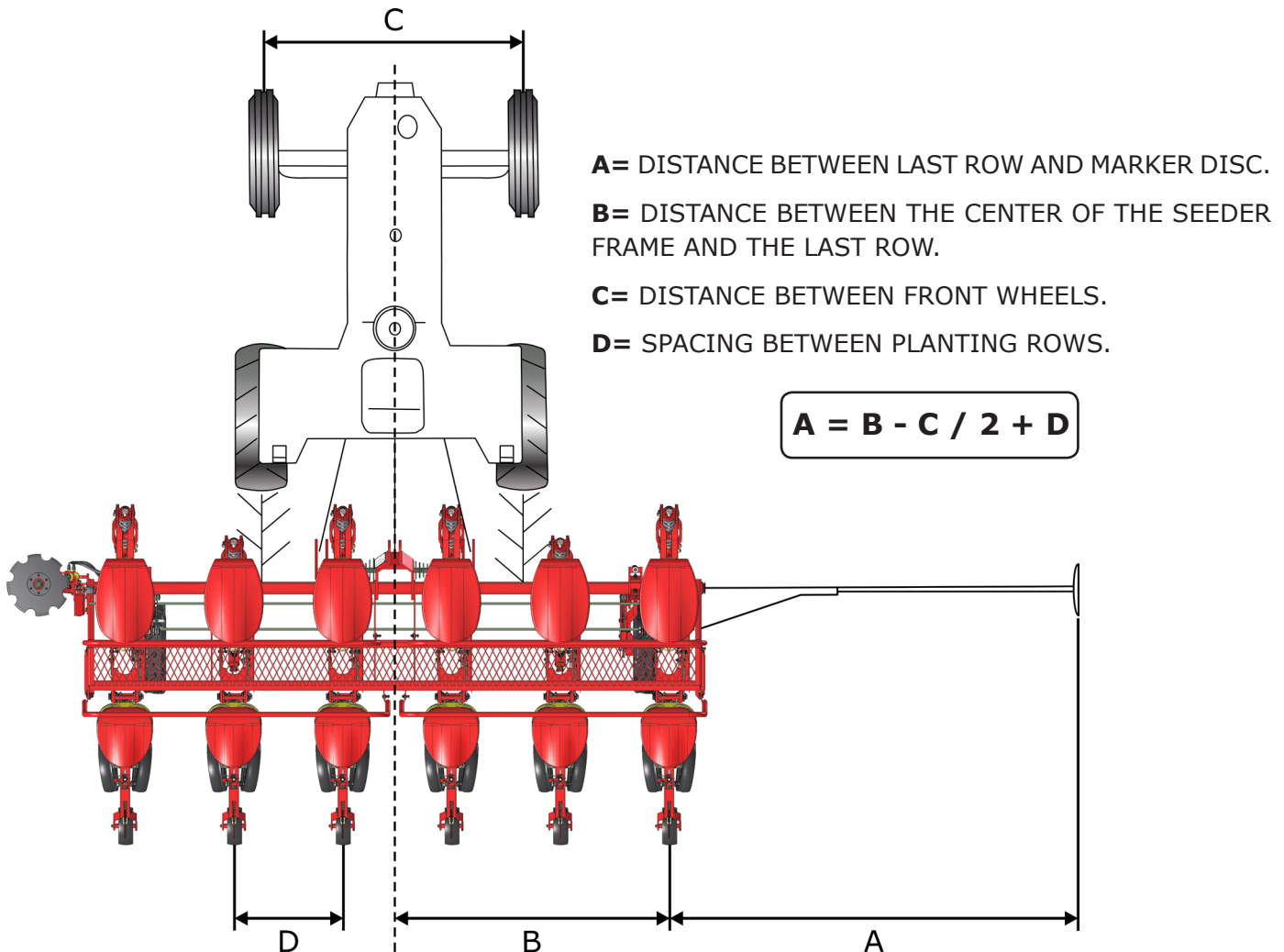


**OPTION 2:** Adjust the arm and marker disc distance by marking the front tire of the tractor on the outside.

**Note:** This marking option should only be used when spacing is required. Otherwise always use option 1.



To determine and adjust the length of the row marker arm in the crop in a practical way observe the scheme below:



### 13. SAFETY RULES - TRANSPORTATION

#### 13.1- Transportation on truck or wagon



- Use appropriate ramps to load or unload the seeder from trucks and wagons. Do not perform these operations in improvised gullies, as serious accidents may occur.
- When using winches, use suitable lifting points.
- Use the supports and properly fit the wheels of the seeder to support it properly.
- Use ropes (cables, chains, ropes, etc.) in sufficient quantities to immobilize the seeder during transport.
- Check the load conditions for the first 10 km of transport and then every 80 to 100 km. Make sure the ropes are not loosening. On bumpy roads check the freight more frequently.
- Always be aware of the transport height, especially in electrical networks and viaducts, etc.
- Check the applicable legislation on height and width limits of the load. If necessary use flags, lights and reflectors to alert other drivers.
- Transport over long distances must be carried out on trucks or wagons.

## 13.2- Transport by tractor drawbar

When transportation the seeder is done by the tractor drawbar, do the following:

- 1- Do not transport with a loaded seeder;
- 2- Note the width of the seeder relative to the narrowest places on the route, especially dockers and ditches;
- 3- The tractor must travel with the headlights on for better viewing;
- 4- Transport by means of a tractor shall not be carried out on long journeys;
- 5- Do not transport overnight.

## 14. MAINTENANCE



**Use only VENCE TUDO original parts. Improvised parts other than mischaracterising the product will prevent warranty analysis through the equipment warranty certificate.**

**Do not use burned oil or diesel oil to lubricate the seeder.**

**Inspect the seeder for worn or broken parts, replace defective parts if necessary.**

**Use the time during which the seeder will remain idle to carry out the necessary repairs.**

**Use vegetable oil for the protection of the seeder if it is not possible to use diesel, hydraulic or lubricating oil only on the internal parts of the seeder, but protect the rubber parts and the distributor discs.**

For the conservation of an agricultural machine or implement to be efficient, we must take certain precaution to increase the useful life of the equipment and improve its operation and use. To do this we must follow certain conservation standards that will save us some hassles, since a simple loose bolt in a component may interrupt the operation of a mechanism, stopping the work with the seeder. This small care that we call periodic and preventive maintenance, costs little and gives us great results in terms of production and conservation.

### 14.1- Washing and storage equipment

#### 14.1.1- Consequences of good or bad use and conservation

Thinking about extending the life and appearance of your machine and its components, thus maintaining its resale value for longer, important information follows:

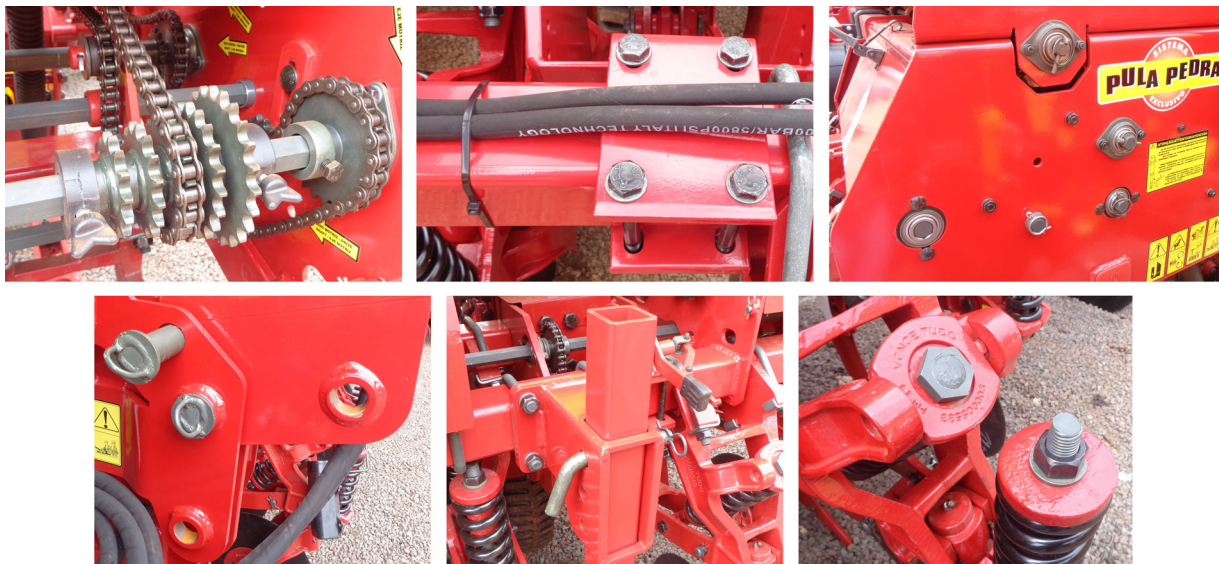
- Fertilizers in general are highly corrosive and their formulation is increasingly aggressive to the components of the machines;
- Wash and clean all components of the seeder during and at the end of the planting season;
- Use neutral products to clean the machine, following the safety and handling guidelines provided by the manufacturer;
- Always carry out maintenance during the periods indicated in the Operation Manual.



**The use of the implement and the care taken by the client, make the difference for the good conservation of the same.**

Observe the following images and notice the difference between the two cases, one in which the maintenance and conservation instructions were applied to the machine, and an other in which these instructions were not applied:

► **Good condition:**



► **Bad condition::**



**14.1.2- Oxidation prevention measures**

► **During planting:**

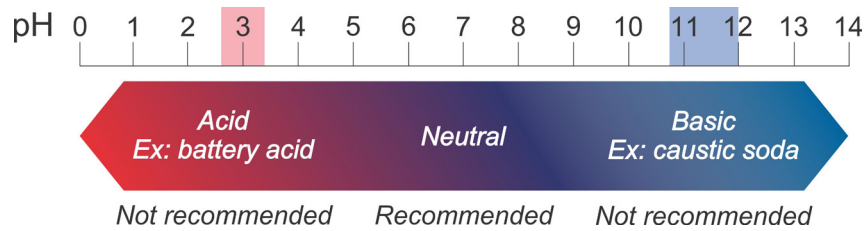
- Avoid spillage and accumulation of fertilizer during the filling of the machine. The fertilizer has great moisture absorption power and this speeds up the oxidation process;
- Use blower, compressed air or broom to remove excess fertilizer from the machine at the end of the day;
- As a way to avoid fertilizer effects, protect the machine from moisture at night and/or rainy periods by storing it in a covered location;

► **Important actions to preserve your machine:**

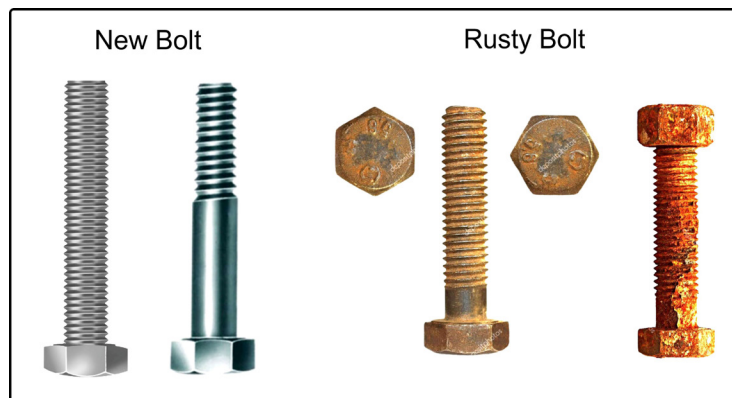
- Be careful when performing high-pressure washing. Do not direct the water jet directly at the connectors and electrical components. If necessary, isolate all electrical components;
- Use only NEUTRAL detergent and water with pH equal to 7;



- Apply the product, following the manufacturer's instructions strictly, on the wet surface and in the correct sequence, respecting the application and washing time;
- Stains and dirt not removed with the products should be removed with the aid of a sponge;
- Rinse the machine with clean water to remove any chemical residues.
- It is not recommended to use:
  - Detergents with basic active principle (pH greater than 7), as they can attack / stain the paint of the machine;
  - Detergents with acid active principle (pH less than 7), these act as stripper / zinc coating remover (the protection of the parts against oxidation).



Check below a new screw and its oxidation state after the application of chemicals with acid active principle (pH less than 7), rinsed and exposed to time:



- Allow the machine to dry in the shade so that it does not accumulate water in its components. Very rapid drying can cause paint stains;
- After drying, lubricate all chains and grease points according to the recommendations in the Operation Manual;
- Spray the entire machine, especially the galvanized parts, with protective oil following the application guidelines of the manufacturer. The protective also prevents adherence of dirt to the machine, facilitating subsequent washing;
- Observe curing time (absorption) and application intervals as recommended by the manufacturer;

**Do not use any other type of oil to protect the machine (used hydraulic oil, burned oil, diesel oil, castor oil, kerosene, etc.).**



**Recommended protective oils:**

- Bardahl Agro protective 200 or 300;
- Chemtool Steel curtainrpw 500



**Failure to comply with the above mentioned conservation measures may result in the loss of warranty for painted or galvanized components that have oxidation (rust).**

### 14.2- Double discs

- Every 600 hours of planting or one harvest, perform the maintenance of the double discs and bearings;
- To do this remove the outer cap, loosening the fixing bolts;
- Wash the hub and remove the old grease;
- Check the bearings for clearance. Adjust them if necessary;
- Replace any worn parts that may affect the operation of the equipment;
- Put new grease on the hubs and the inside of the cap, reassembling them with the fixing bolts;
- Every 200 hours of work, check for slack in the bearings.

### 14.3- Maintenance at the end of harvest

#### 14.3.1- Cleaning hoppers

After finishing the planting, clean the hoppers by removing the remaining fertilizer and seeds. Open the distributors to flush system components.

- 1- Remove all conductors, both for fertilizers and seeds, by washing them with water and neutral soap only and store them in a separate place;
- 2- Paint all parts that need repainting;
- 3- Lubricate the entire machine;
- 4- Thoroughly wash the seeder and lubricate it using castor oil;
- 5- After all repairs and maintenance have been carried out, keep the seeder in a dry, sheltered place with all of its parts in working condition, so that you can get the most out of your investment.

#### ► Fertisystem Auto-Lub

##### MAINTENANCE OR REPLACEMENT OF THE COATING AND WASHER

At the end of the harvest, check the coating (A) (fig. 33). If it has excessive wear, replace it by loosening and removing the bolts (B). Check the felt (C), washer (D), and cleaning washer (E) for wear. Excessive wear is verified when a large amount of fertilizer is discharged through the self-cleaning discharge orifice located on the underside of the body.

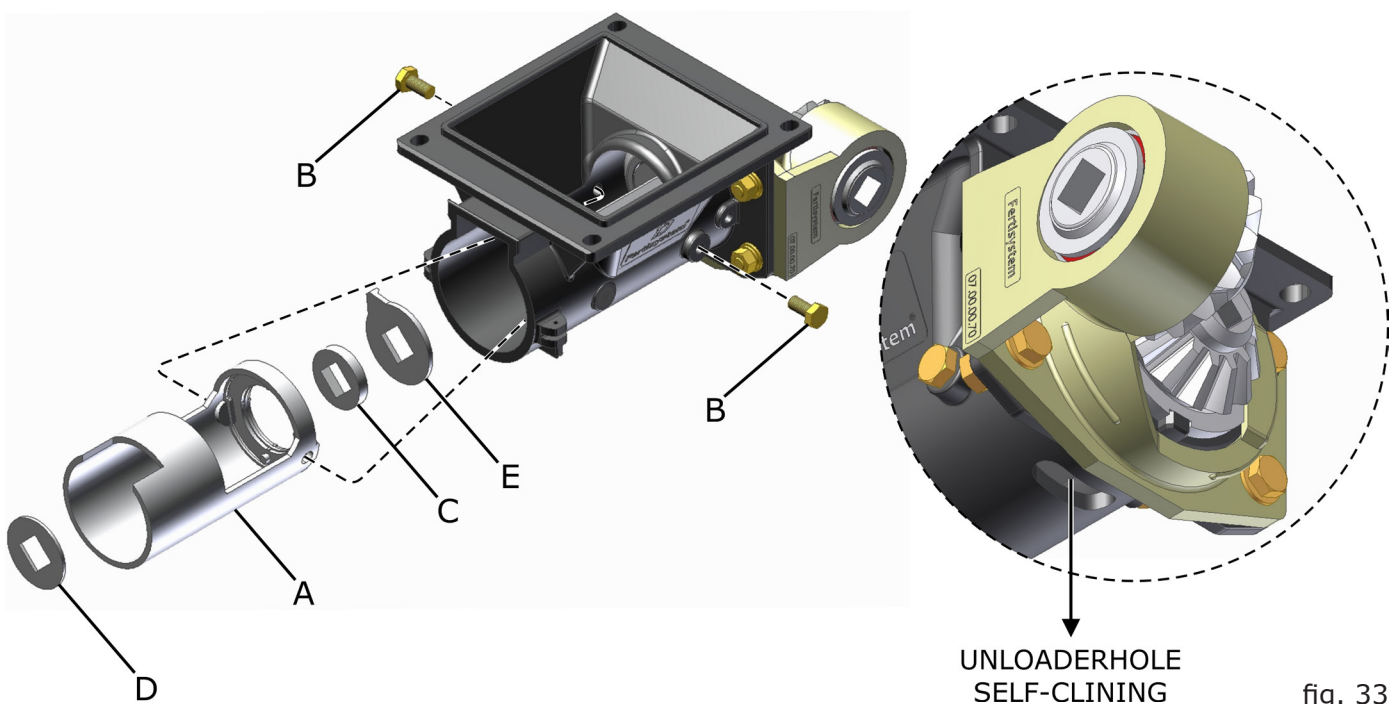


fig. 33

### CLEANING OR REPLACEMENT OF BEARING ASSEMBLIES

To carry out the cleaning, maintenance or replacement of bearings and assembly components, proceed as follows:

- 1-** Remove the meter assembly from the seeder by removing the drive shaft and union bushings. Loosen and remove the meter attachment bolts in the fertilizer hopper of the seeder;
- 2-** Remove the four fixing bolts and nuts (A) (fig. 34) from the transmission pinion bearing bush (B);
- 3-** Loosen and remove the fixing bolts (C) of the coating (D), removing it from the assembly;
- 4-** Remove the bushing (F) and the bearings (G). Remove the drive shaft (H) and remove the bushing from the bearings and the retainer (J) by making the necessary cleaning or replacements;
- 5-** Remove the protective ring (N).

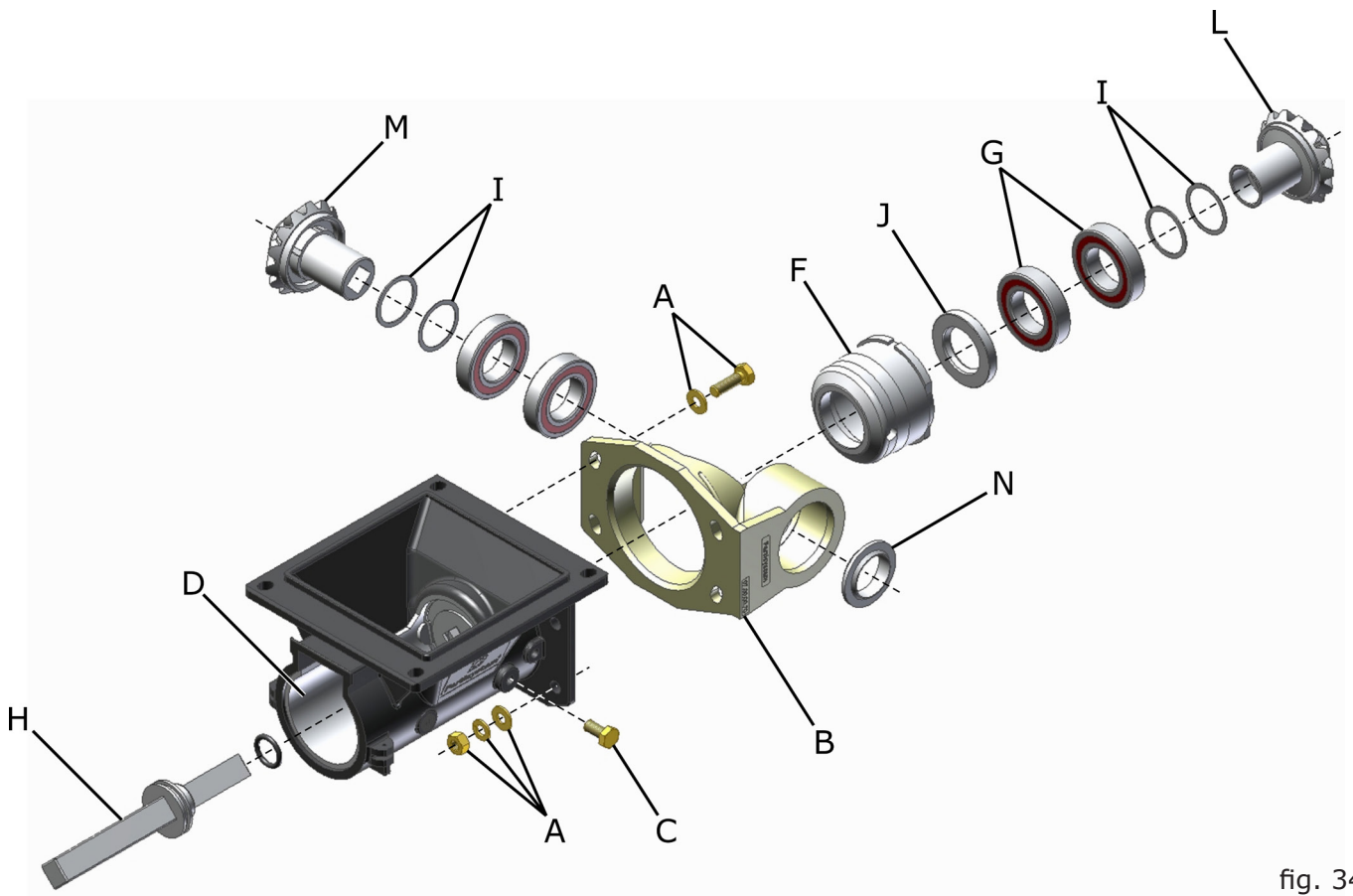


fig. 34

### ATTENTION

**Care must be taken to ensure that the thrust washers (I) (fig. 34) are assembled, which will provide a larger or smaller space for adjusting the pinions (L and M). If it is necessary to replace the pinions, this must be done from the whole assembly: drive pinion (L) and driven pinion (M).**

**The retainer (J) must be replaced when disassembling it, as it will be damaged in this procedure.**

### ► Spindler

In order to maintain or exchange the fertilizer distributor spindler or to perform an internal repair, proceed as follows:

- 1- Loosen the bolts (D) (fig. 35), which fix the base of the gears (E) releasing it;
- 2- Remove the cotter pin (H) and the shaft (I) in the direction of the pin which will not need to be disassembled;
- 3- Remove the bushing (J) and the spindle spring (L) from the end ("X") of the frame (M);
- 4- Lubricate distributors daily.

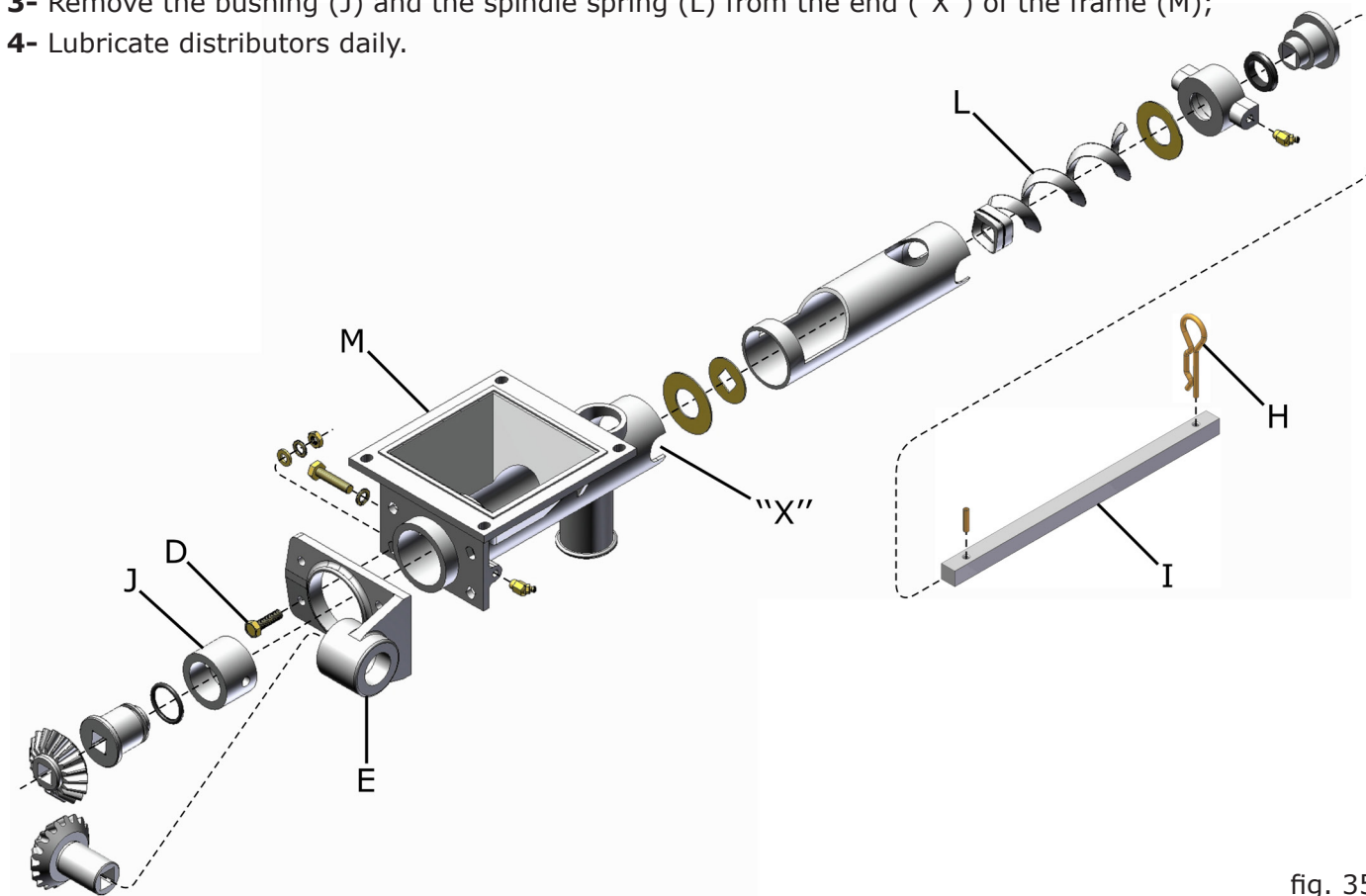


fig. 35

### 14.3.2- Seed meters

Perform periodic maintenance and cleaning on seed hoppers and precision discs to remove graphite dust, fungicides and inoculants contained in the seeds.

Also make periodic maintenance during planting, as needed, mainly to eliminate excess products used during treatment.

### 14.3.3- Greasing

Proper grease lubrication consists of not allowing the excess or lack of it in any place, as both situations are harmful.

The regular supply of grease together with adequate quantity are basic conditions for achieving greater efficiency during bearing and joint work. Grease supply intervals should be lower when operating conditions are considered to be severe (large loads, constant impacts on bearings, influence of the environment with high temperatures, high dust content and contact with water).

Using a spray gun or grease pump, lubricate the grease points so that new grease enters and expels the damaged grease portion. Before lubricating clean the grease fittings with a cloth and if it is defective, replace it.

## 15. TECHNICAL RECOMMENDATIONS

For the perfect operation of your seeder observe the following procedures:

- 1- AFTER THE FIRST 5 HOURS OF USE, PLEASE RETIGHTEN ALL COMPONENTS.
- 2- LUBRICATE ALL POINTS BEFORE STARTING PLANTING.
- 3- MAKE THE ADJUSTMENTS OF THE SEEDER (SPACING, SEED AND FERTILIZER), BEFORE STARTING THE PLANTING.
- 4- DO NOT MAKE ADJUSTMENTS WITH THE EQUIPMENT IN MOTION.
- 5- DO NOT MAKE LONG DISPLACEMENTS WITH THE SEED CHARGER.
- 6- DO NOT KEEP THE SEEDER WITH THE SEED AND FERTILIZER HOPPERS FULL.
- 7- WHEN RESTARTING THE PLANTING, MAKE SURE THAT THE DISTRIBUTION MECHANISMS ARE NOT OBSTRUCTED.
- 8- DO NOT MOVE IN REVERSE WITH THE MACHINE IN PLANTING POSITION.
- 9- DO NOT PERFORM VERY CLOSED CURVES DURING PLANTING OPERATION. MANEUVER THE SEEDER ONLY WHEN IT IS TOTALLY RAISED
- 10- PERFORM THE PLANTING OPERATION AT THE RECOMMENDED SPEED FOR THE CULTURE.
- 11- AT THE END OF THE PLANTING OPERATION, CLEAN, WASH AND LUBRICATE THE SEEDER, USING SPRAYING PRODUCTS WITHOUT THE PRESENCE OF DETERGENTS.
- 12- PROTECT THE SEEDER AGAINST CLIMATE FACTORS DURING THE STORAGE PERIOD.
- 13- USE ONLY ORIGINAL VENCE TUDO PARTS FOR REPLACEMENT.
- 14- PLEASE READ THE OPERATION MANUAL CAREFULLY.

**FAILURE TO OBSERVE THE RELATED ITEMS MAY CAUSE SERIOUS DAMAGE TO THE OPERATION AND CONSERVATION OF THE SEEDER.**

## 16. WORKING SPEED CALCULATION

To calculate the working speed, proceed as follows:

- 1- Determine the time in seconds spent by the tractor-seeder set to cover 50 meters, with the supplied seeder.
- 2- Measure more than once to get an average.
- 3- Then, calculate as shown below.

### EXAMPLE:

**Time:** 32 seconds in 50 meters.

| To travel 50 meters  | To travel 1 Km  |
|--|---|
| $\begin{array}{r} 50 \text{ m} \quad \underline{\hspace{2cm}} \quad 32 \text{ sec.} \\ 1,000 \text{ m} \quad \underline{\hspace{2cm}} \quad X \end{array}$ | $\begin{array}{r} 1 \text{ Km} \quad \underline{\hspace{2cm}} \quad 640 \text{ sec.} \\ X \quad \underline{\hspace{2cm}} \quad 3,600 \text{ sec. (1h)} \end{array}$ |
| $X = 640 \text{ sec.}$   | $X = \frac{1 \times 3,600}{640}$  |

**X = 5.6 Km/h - working speed**

### Units of measurement:

|             |                       |
|-------------|-----------------------|
| 1 kg .....  | 1.000 g               |
| 1 ha .....  | 10.000 m <sup>2</sup> |
| 1 min ..... | 60 s                  |
| 1 hs .....  | 3.600 s               |
| 1 km .....  | 1.000 m               |

### IMPORTANT

During the calculation of the working speed, turn off the transmission by removing the chain, avoiding waste of fertilizers and seeds.

## 17. ADDITIONAL PARTS BOX

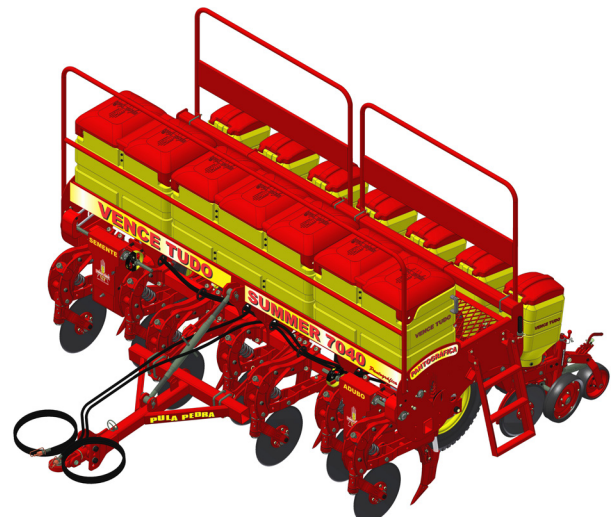
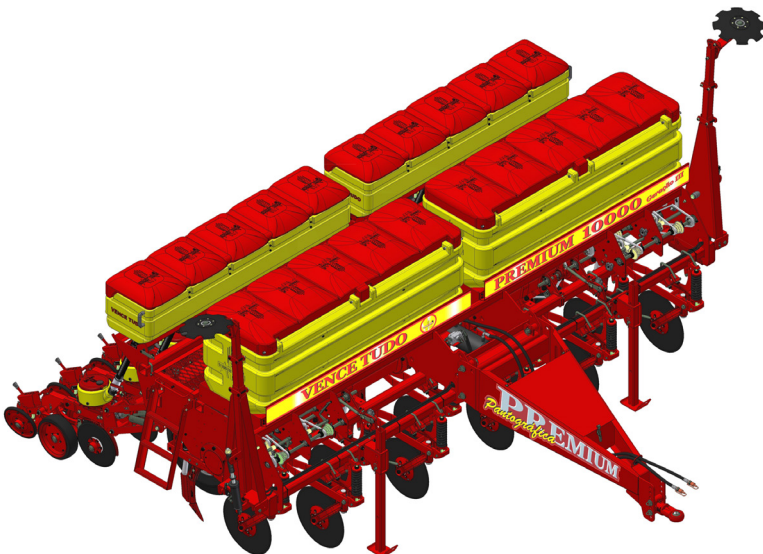
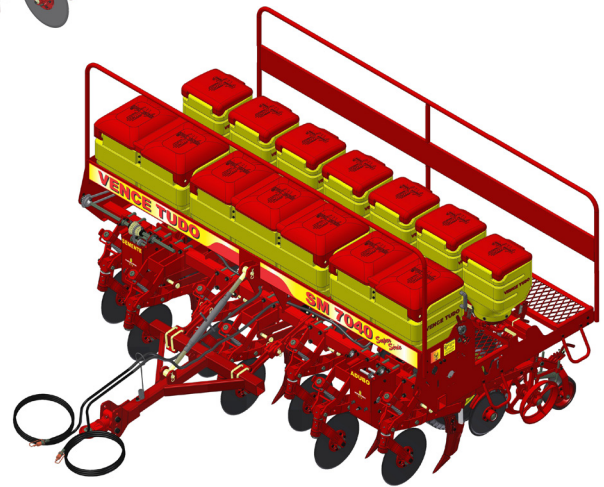
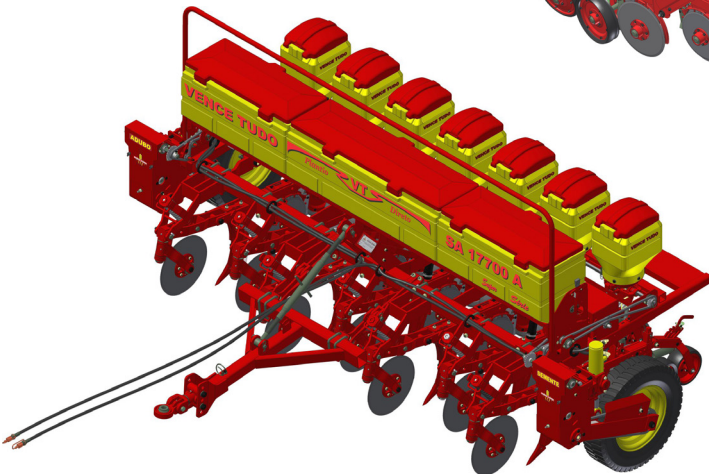
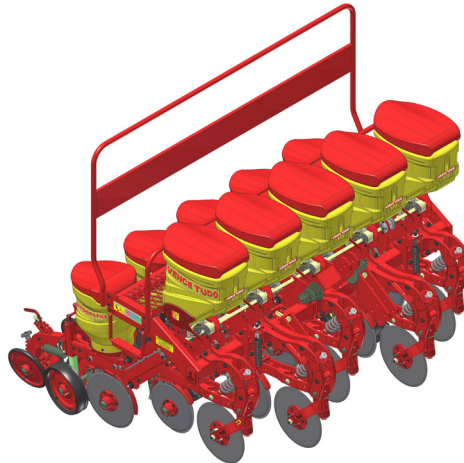
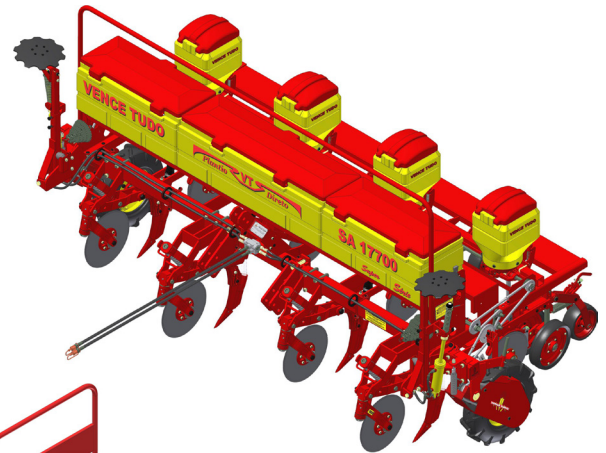
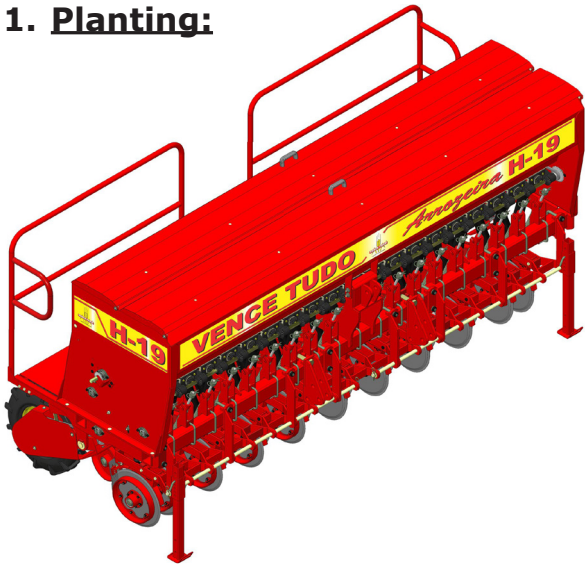
VENCE TUDO hydraulic fertilizer PA PANTOGRÁFICA *Série Ouro* seeders model leave the factory with an additional parts box according to the option chosen by the customer to meet the most varied growing conditions. When you receive your seeder, check with your dealer and check the parts according to model and assembly option.

| ADDITIONAL PARTS BOX - PA PANTOGRPHIC GOLD SERIES |  |
|---|--|
| CODE  | DESCRIPTION                            |
| 001001001   | PIN                                    |
| 937082005   | OPERATING MANUAL ENGLISH               |
| 937082105   | PART CATALOG ENGLISH                   |
| 500259000   | PLASTIC BOX # 1                        |
| 922052050   | LOCK PIN R 4.5x80 ZCA (TECNO 215x4.50) |
| 900005306   | TIP                                    |
| 900005558   | FINE TIP                               |
| 922012427   | SPRING PIN 6 x 28 DIN 1481             |
| 922013027   | SPRING PIN 10 x 28 DIN 1481            |
| 200266000   | CM CORN/SUNFLOWER GEAR 250.650.09      |
| 900100005   | SOYBEAN DISC 90F Ø9 CZ                 |
| 900100006   | SOYBEAN DISC 90F Ø8 CZ                 |
| 900100013   | CORN DISC 28F 10 x 14.8 VM4            |
| 900100017   | CORN DISC 28F Ø12 AZ                   |
| 900100018   | CORN DISC 28F 8.5 x 11.5 CZ8           |
| 900100019   | CORN DISC 28F 8.9 x 13.5 VD7           |
| 900100191   | FLAT CORN RING AM                      |
| 900100192   | CORN RING WITH RECESS VD               |
| 200042003   | SOYBEAN FLAT SEPARATOR RING 90F METAL  |
| 200265000   | CM SOYBEAN GEAR                        |
| 200267000   | CM GEAR FOR BEAN/COTTON                |
| 900100031   | BEAN DISC 62F 7.5 x 11.5 AZ            |
| 900100032   | BEAN DISC 62F 8.5 x 12 BR              |
| 900100033   | BEAN DISC 62F 9.5 x 12.5 AM            |
| 900100201   | FLAT BEAN RING CZ                      |

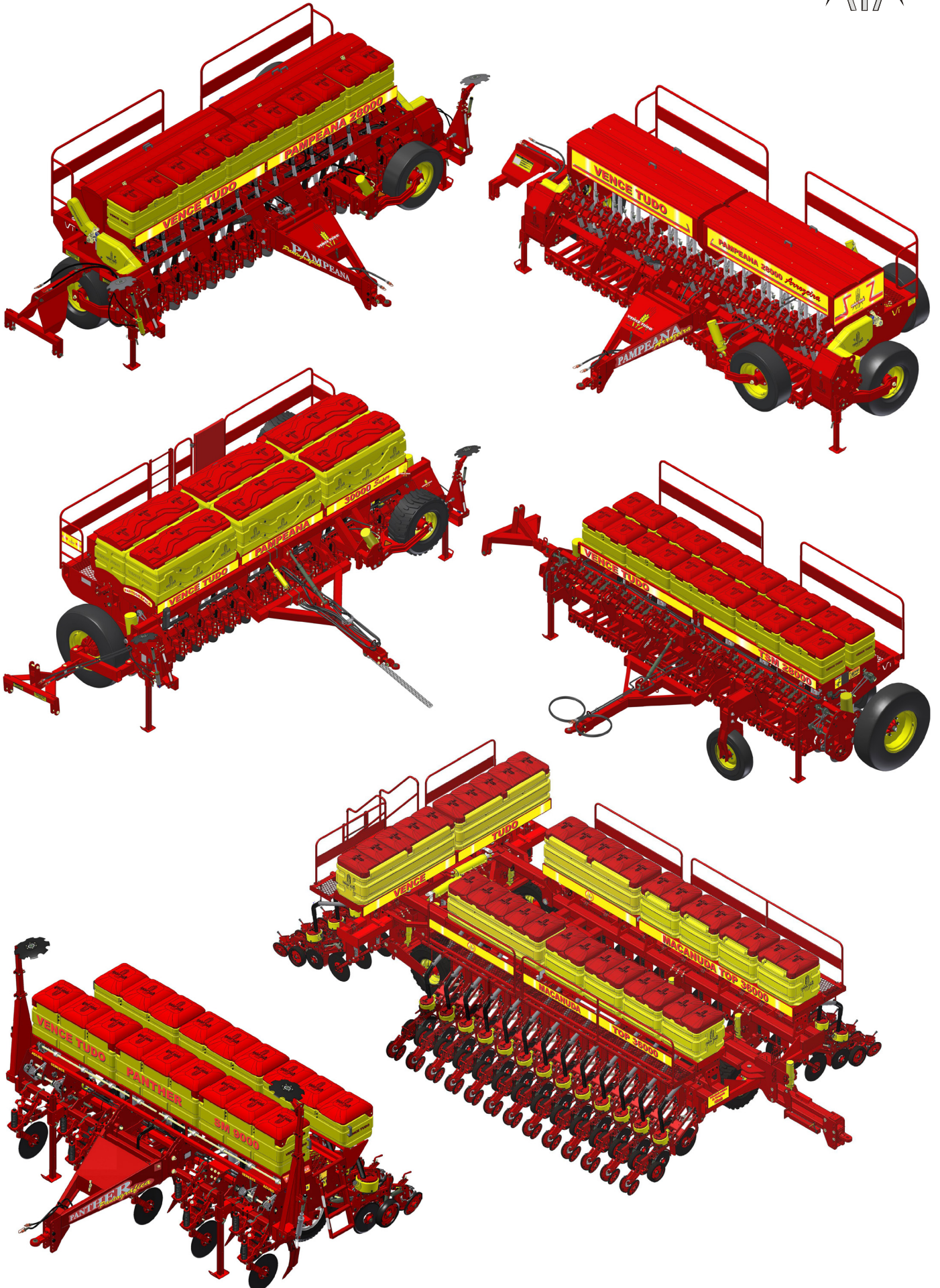
**Note:** The quantities of the aforementioned parts in the previous table vary according to the configuration of the seeder.

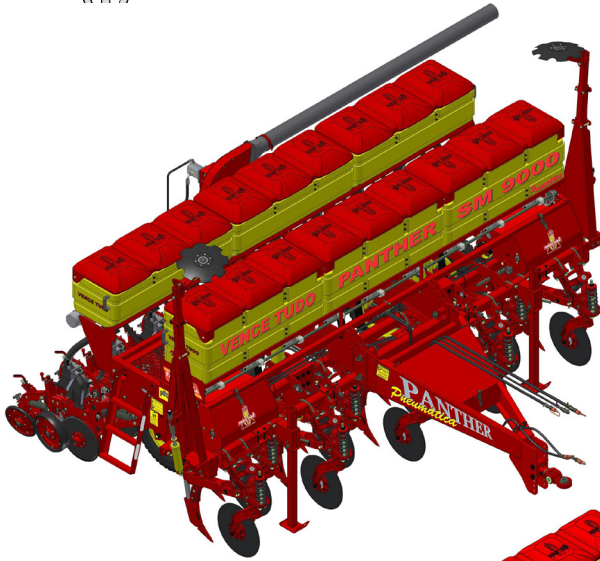
## VENCE TUDO PRODUCTS

### 1. Planting:

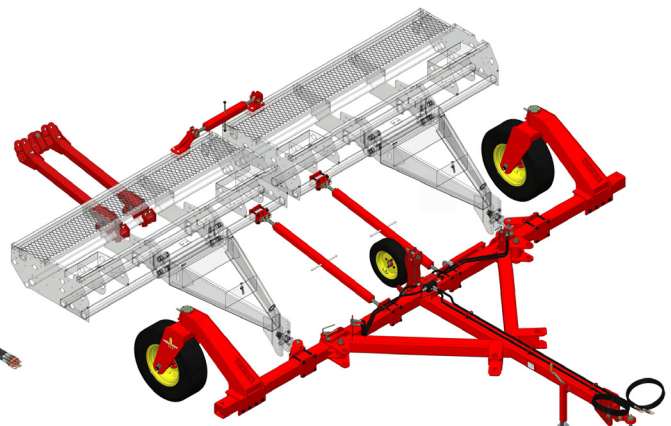
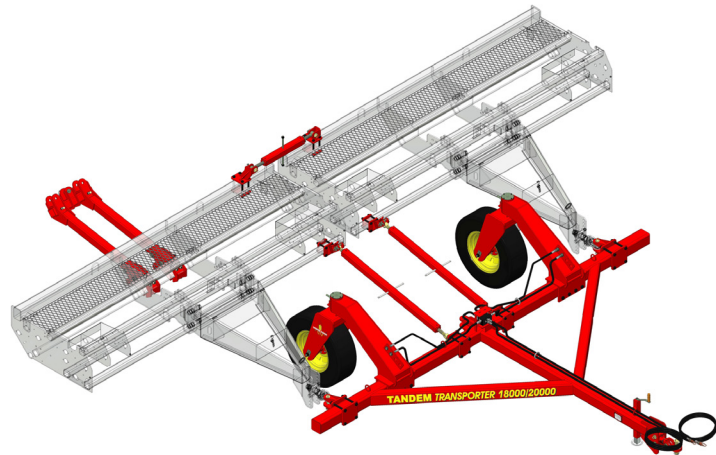
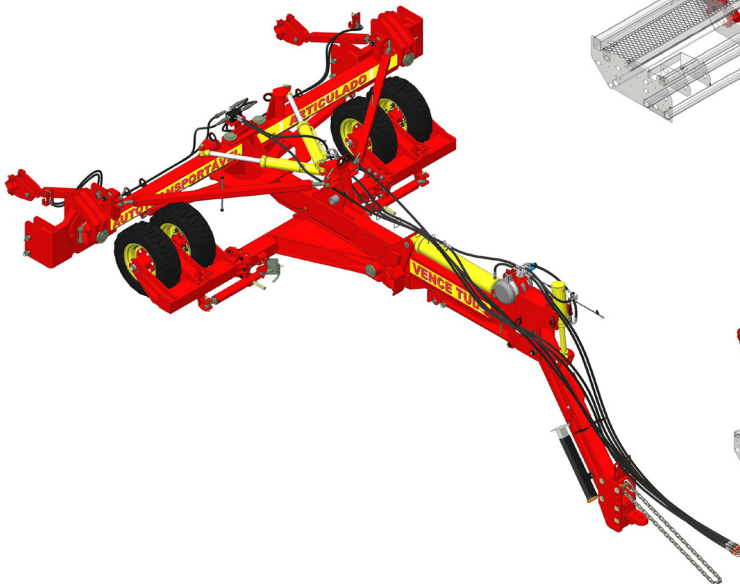








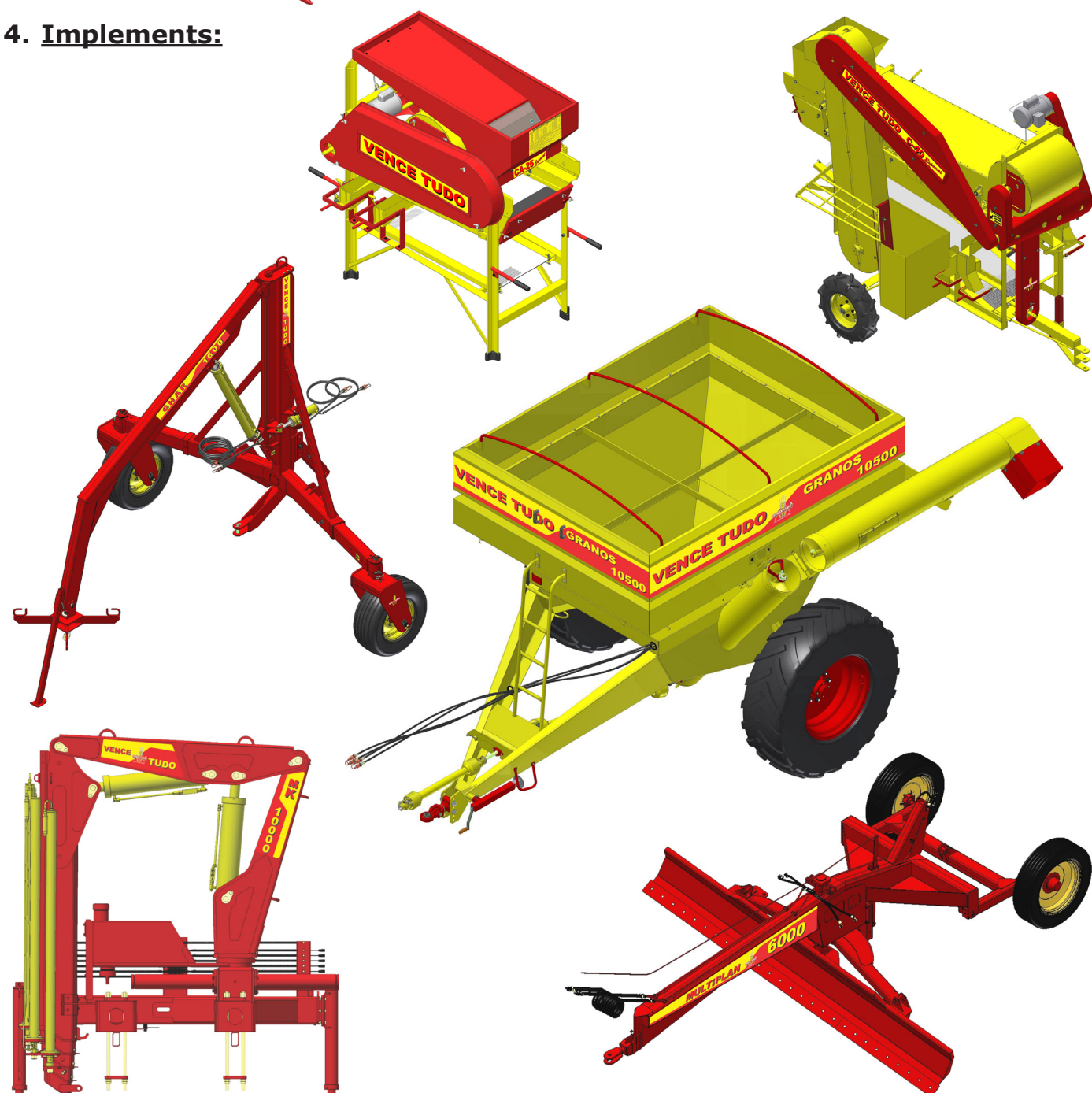
## 2. Planting System:



### 3. Harvest:



### 4. Implements:





**VENCE TUDO**

**FORTE ATÉ NO NOME**

**INDÚSTRIA DE IMPLEMENTOS AGRÍCOLAS VENCE TUDO  
IMPORTAÇÃO E EXPORTAÇÃO LTDA**

Rod. RS 223 - Km 53 - Área Industrial - CEP 98.200-000 - Ibirubá - RS - BRASIL  
Fone DDD: 54 3324-8000 Fone DDI: +55 54 3324-8000 Fax DDD: 54 3324-8030 Fax DDI: +55 54 3324-8030  
E-mail: [vencetudo@vencetudo.ind.br](mailto:vencetudo@vencetudo.ind.br)