# Instruction Manual



## GARRA 300

Plow Scarifier with Automatic Shank

BALDAN

# Presentation

We appreciate the preference and would like to congratulate you for the excellent choice you just made, since you have acquired a product manufactured with **BALDAN IMPLEMENTOS AGRÍCOLAS S/A** technology.

This manual will guide you through the procedures required since its acquisition until operational procedures of usage, safety and maintenance.

**BALDAN** assures that it has delivered this implement for resale in full and in perfect conditions.

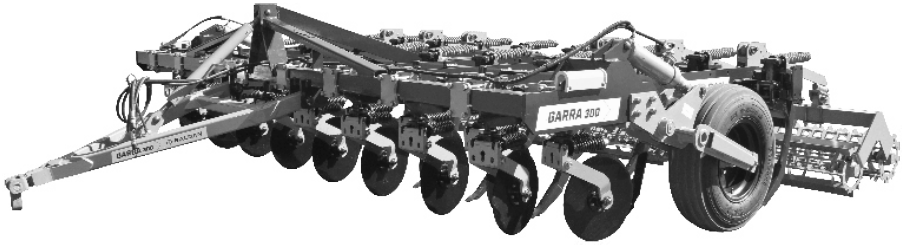
Resale was responsible for the custody and maintenance during the period in its possession, and also for the assembly, retightening, lubrication and overhaul.

During the technical delivery, dealer should guide the user regarding maintenance, safety, their obligations in eventual technical assistance, strict compliance with the warranty term and reading the instructions manual.

Any technical assistance request while in warranty should be made to the dealer from whom you have purchased it.

We reiterate the need for a careful read of the warranty certificate and compliance of all items from this manual, because by doing so you will increase the life of your device.

# Instruction Manual





## GARRA 300

Plow Scarifier with Automatic Shank

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

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

BALDAN

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## Index

## ▪ Baldan Warranty

**BALDAN IMPLEMENTOS AGRÍCOLAS S/A** ensures the dealer normal performance of the implement for a period of six (6) months as of the delivery date on the retail invoice to the first final consumer.

During this period, **BALDAN** undertakes to repair defects in material and/or of manufacture of its liability, including labor, freight and other expenses of the dealer's liability.

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

When this procedure is not possible and the resolving capacity of the dealer is exhausted, the dealer will request the support of **BALDAN** Technical Assistance through a specific form distributed to dealers.

After analyzing the replaced items by **BALDAN** Technical Assistance, and concluding that it is not a warranty, then the dealer will be responsible for the costs related to the replacement; as well as material expenses, travel including accommodation and meals, accessories, lubricant used and other expenses arising from the call out to Technical Assistance, and **BALDAN** company is authorized to carry the respective invoice in the name of the resale.

Any repairment carried in the product within the dealer warranty deadline will only be authorized by **BALDAN** upon previous budget presentation describing parts and workforce to be executed.

The product is excluded from this term if it is repaired or modified by representatives not belonging to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product.

This warranty is void where it is found that the defect or damage is caused by improper use of the product, failure to follow instructions or inexperience of the operator.

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

Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, grounds for termination of a purchase agreement, or for indemnification of any nature.

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

## ▪ General Information

### • To the owner

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

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

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

***The incorrect handling of this equipment may result in severe or fatal accidents. Before running the equipment, carefully read the instructions contained in this manual. Make sure that the person responsible for the operation is instructed as the correct and safe handling. Also make sure that the operator has read and understood the instructions manual of the product.***

**⚠ ATTENTION**

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

**This Regulatory Standard has the purpose of establishing precepts to be observed in the organization and work environment, compatible to the planning and development of agriculture, livestock, forestry, forest exploitation and aquaculture with safety and health and work environment.**

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

**For more information, refer to the site and read NR-31 in full.**
**http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm**

## ▪ Safety rules

### • To the operator

THIS SYMBOL INDICATES IMPORTANTE SAFETY WARNING. IN THIS MANUAL, WHENEVER YOU FIND IT, READ THE FOLLOWING MESSAGE CAREFULLY AND PAY ATTENTION TO THE POSSIBILITY OF PERSONAL ACCIDENTS.

**ATTENTION**

Carefully read the instructions manual tolearn about the recommended safety practices.

**ATTENTION**

Only start to operate the tractor when you are properly seated and with the seat belt locked.

**ATTENTION**

Do not transport people on the tractor or over the equipment.

**ATTENTION**

There are risks of severe injuries due to tipping when working in sloped terrains. Do not over speed.

**ATTENTION**

Do not work with the tractor if the front has insufficient ballast to the rear equipment. Should there be a trend to lift, add weights or ballasts to the front or the front wheels.

**ATTENTION**

Before performing any maintenance in your equipment, make sure it is properly stopped. Avoid being run over.

## ▪ Safety rules

**⚠ ATTENTION**

**FOLLOW ALL RECOMMENDATIONS, WARNINGS AND SAFE PRACTICES RECOMMENDED IN THIS MANUAL, UNDERSTAND THE IMPORTANCE OF YOUR SAFETY. ACCIDENTS MAY LEAD TO DISABILITY OR INCLUDING DEATH. REMENBER, ACCIDENTS CAN BE AVOIDED!**

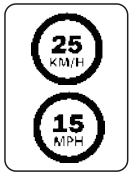
### ⚠ ATTENTION

Do not perform adjustments while GARRA 300 running. When performing any service on GARRA 300, switch off the tractor first. Use appropriate tools.

### ⚠ ATTENTION

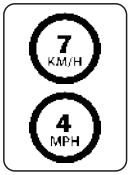
When searching for a possible leakage on the hoses, use a piece of cardboard or wood, never use your hands. Avoid fluid incision into the skin.

### ⚠ ATTENTION



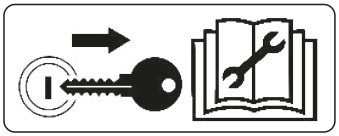

When transporting the GARRA 300, do not exceed the speed of 25 Km/h or 15 MPH in order to avoid risk of damage and accidents.

### ⚠ ATTENTION




When working with the GARRA 300, do not exceed the speed of 7 Km/h or 4 MPH, avoiding risk of damages and accidents.

### ⚠ ATTENTION



Remove the ignition key before performing any type of maintenance in GARRA 300. Protect yourself against possible injuries or death caused by GARRA 300 unexpected start-up.
Do not start up the tractor if GARRA 300 is not properly coupled.

### ⚠ ATTENTION

Hydraulic oil works under pressure and may cause serious injuries if there are any leakages.
Periodically check hoses for conservation. If there are any sign of leakage, replace them immediately. Before connecting or disconnecting hydraulic hoses, relief system pressure by activating the command with the tractor power switched off.

## ▪ Safety rules

**⚠ ATTENTION**

**ALCOHOLIC BEVERAGE OR SOME MEDICATIONS MAY CAUSE LOSS OF REFLEXES AND CHANGE THE OPERATOR'S PHYSICAL CONDITIONS. FOR THIS REASON, NEVER OPERATE THIS EQUIPMENT UNDER ANY OF THESE SUBSTANCES.**

### ⚠ ATTENTION

Always maintain places of access and work free of residues such as oil or grease to prevent accidents.

### ⚠ ATTENTION

Before working on or transporting the GARRA 300, check for people or obstructions near the machine.

### ⚠ ATTENTION

Avoid heating parts near the fluid lines.
Heating may generate fragility in the material, rupture and exit of the pressurized fluid, causing burns and injuries.

### ⚠ ATTENTION

Keep the articulation area free while the GARRA 300 is in operation.
In closed curves, prevent tractor wheels from touching the head.

### ⚠ ATTENTION

Never weld the wheel mounted with tire, the heat may cause air pressure increase and provoke the explosion of the tire.
When filling the tire, position yourself besides the tire, never in front of it. To inflate a tire, always use a containment device (inflation cage).

### ⚠ ATTENTION

- Dispose residues inappropriately affects the environment and the ecology since you will be polluting rivers, canals or the soil.

Inform yourself about the proper way of recycling or disposing residues.

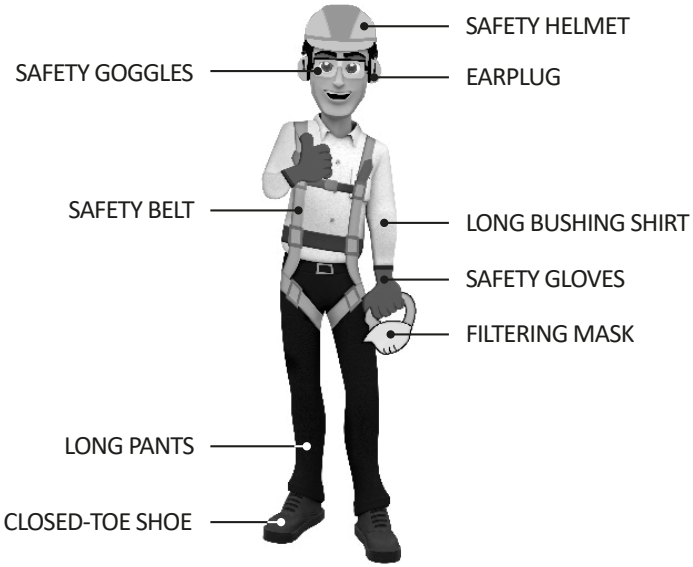
**PROTECT THE ENVIRONMENT!**

## ▪ Safety rules

### • PPE Equipament

**⚠ ATTENTION** | **DO NOT WORK WITH GARRA 300 WITHOUT FIRST WEARING PPES (SAFETY EQUIPMENT). IGNORING THIS WARNING MAY CAUSE DAMAGES TO HEALTH, SEVERE ACCIDENTS OR DEATH.**

When performing certain procedures with the **GARRA 300**, place the following Safety Equipment (PPE) below:




**❗ IMPORTANT**

**The safety practice must be performed in all stages of working with the GARRA 300, thus avoiding accidents such as impact of objects, fall, noise, cuts and ergonomics, ie the person responsible for operating the GARRA 300 is subject to internal and external damage to your body.**

**OBSERVATION** | **All PPEs (Safety Equipment) should have certificate of authenticity.**

## ▪ Warnings

⚠ When operating GARRA 300, do not allow people to stay too close or over it.

⚠ When carrying out any assembly and disassembly service on the discs, wear protective gloves.

⚠ Before connecting or disconnecting hydraulic hoses, relief the system pressure by activating the command with the tractor power switched off.

⚠ Periodically check the conservation status of the hydraulic hoses. If there are indications of oil leakage, replace the hose immediately, because the oil works under high pressure and may cause serious accidents.

⚠ Do not wear loose clothing, as they may get caught in the GARRA 300.

⚠ When starting the tractor's engine, be properly seated in the operator's seat and be fully aware of how to correctly and safely handle both the tractor and GARRA 300. Always put the gear shift in neutral position, unplug the power take-off gear switch and place the hydraulic controls in neutral position.

⚠ Do not start the engine in a closed environment or with no proper ventilation since the exhaust gases are harmful to health.

⚠ When maneuvering the tractor to couple GARRA 300, make sure you have the necessary space ant that there is no one too close, always maneuver at low gear and be prepared to brake in an emergency.

⚠ Do not perform adjustments while GARRA 300 is running.

⚠ When working in sloped terrains, proceed with precautions, always trying to maintain the required stability. In case of imbalance, reduce acceleration, turn the wheels to the slope side of the terrain and never lift the scarifier.

⚠ Always drive the tractor at speeds compatible to safety, especially during works in bumpy terrains or slopes, keep the tractor always engaged.

⚠ When driving the tractor in highways, keep the brake pedals interconnected.

⚠ Do not work with a tractor with a light rear. If its front tends to raise, add weights or ballasts to the front of the tractor or to its front wheels.

⚠ When leaving the tractor, put the gear lever in neutral position and apply the parking brake. Never leave GARRA 300 coupled to the tractor in the raised position of the hydraulic system.

⚠ All maintenance on GARRA 300 shall be performed with the equipment stopped and with the tractor switched off.

⚠ Periodically check all GARRA 300 components before using it.

⚠ Due to the equipament used and work conditions on field or in maintenance areas, precautions are required. Baldan does not have direct control over precautions, therefore, it os the owner's responsibility to put into practice the safety procedures while working with GARRA 300.

## ▪ Warnings

⚠ Check the minimum power of the tractor recommended for each model of GARRA 300. Only use tractor with compatible power and ballast.

⚠ When transporting GARRA 300, drive at speeds compatible to the terrain and never exceed 25 km/h, in order to reduce maintenance and, therefore, increase GARRA 300's service life.

⚠ Alcoholic beverage or some medications may cause loss of reflexes and change the operator's physical conditions. Therefore, never operate GARRA 300 under the influence of any of these substances.

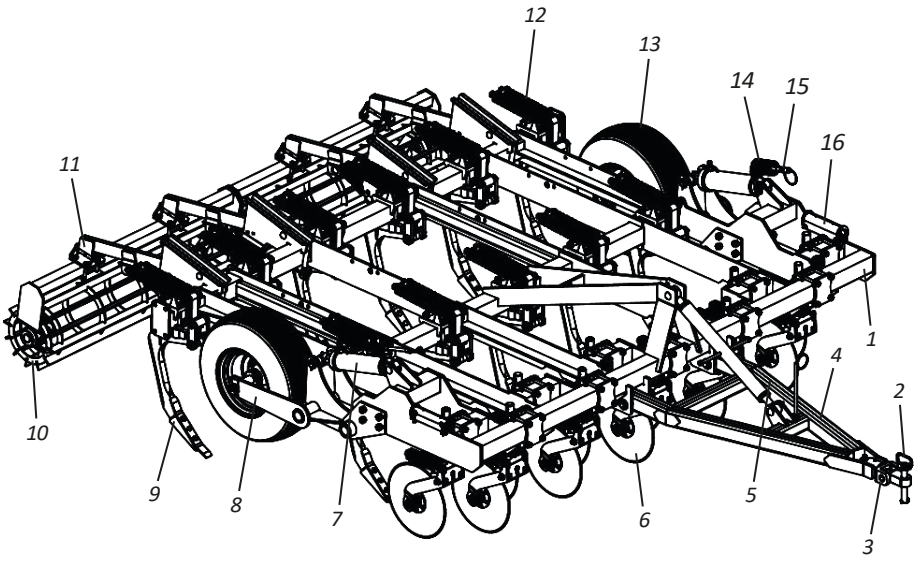
⚠ Read or explain all the procedures above to users that cannot read.

In case of doubts, refer to Post-Sales.
Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br

## ▪ Components

### • GARRA 300 - Plow Scarifier with Automatic Shank (Single Roller)

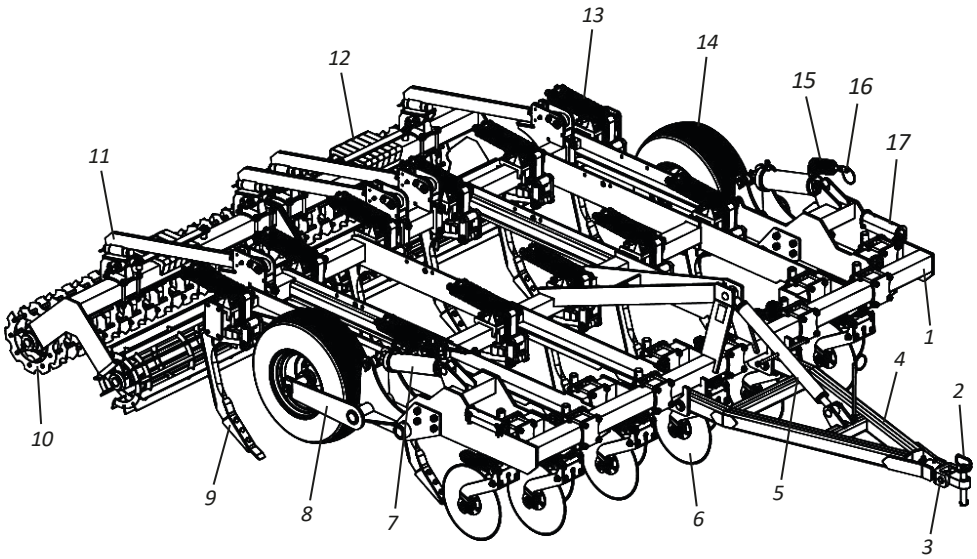
***1.*** Chassis
***2.*** Linchpin
***3.*** Hook shackle
***4.*** Coupling head
***5.*** Head regulator
***6.*** Complete cutting disk
***7.*** Hydraulic cylinder
***8.*** Right articulation support
***9.*** Auto disarm shaft
***10.*** Single disking roller
***11.*** Sway bar of disking roller
***12.*** Shaft spring
***13.*** Tire
***14.*** Limiter
***15.*** Hydraulic hose
***16.*** Lock



## ▪ Components

### • GARRA 300 - Plow Scarifier with Automatic Shank (Double Roller)

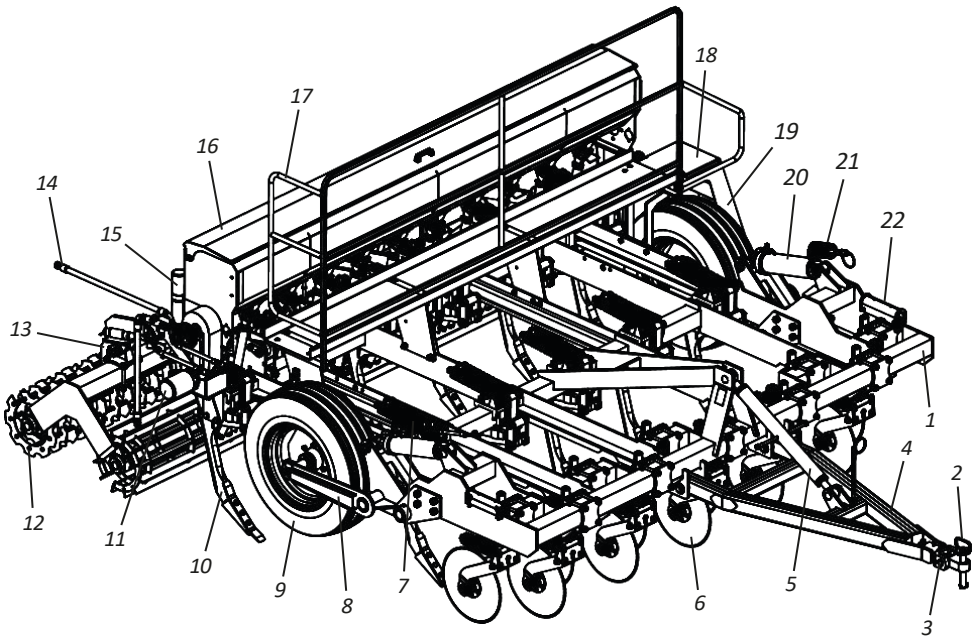
***1.*** Chassis
***2.*** Linchpin
***3.*** Hook shackle
***4.*** Coupling head
***5.*** Head regulator
***6.*** Complete cutting disk
***7.*** Hydraulic cylinder
***8.*** Right articulation support
***9.*** Auto disarm shaft
***10.*** Double disking roller
***11.*** Sway bar of disking roller
***12.*** Counterweight
***13.*** Shaft spring
***14.*** Tire
***15.*** Limiter
***16.*** Hydraulic hose
***17.*** Lock



## ▪ Components

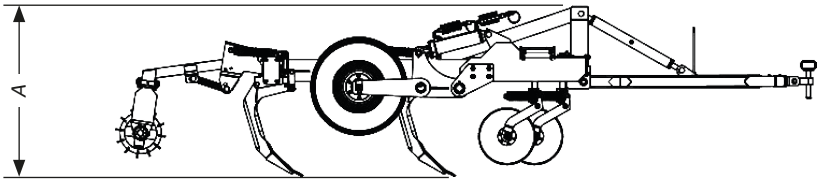
### • GARRA 300 - Plow Scarifier with Automatic Shank (Seed Tank)

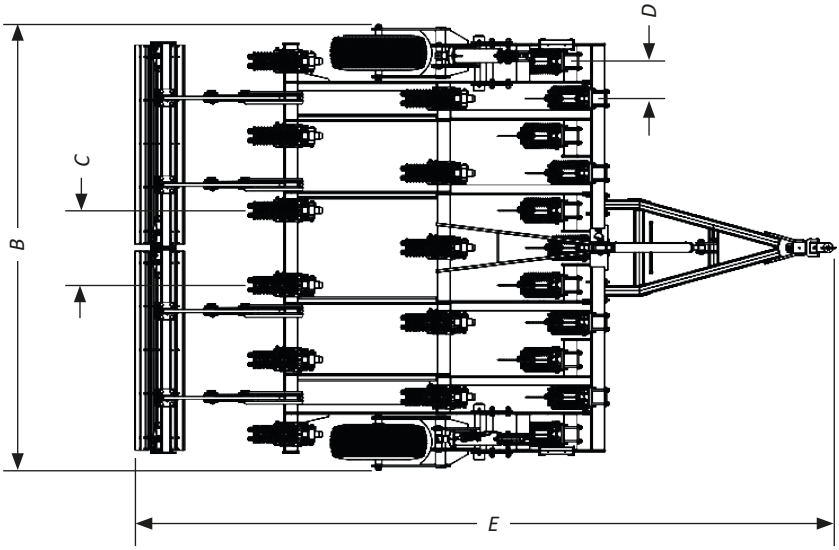
***1.*** Chassis
***2.*** Linchpin
***3.*** Hook shackle
***4.*** Coupling head
***5.*** Head regulator
***6.*** Complete cutting disk
***7.*** Shaft spring
***8.*** Right articulation support
***9.*** Tire
***10.*** Auto disarm shaft
***11.*** Hydraulic engine
***12.*** Double disking roller
***13.*** Sway bar of disking roller
***14.*** Hydraulic hose
***15.*** Manual container
***16.*** Seed tank
***17.*** Platform handrail
***18.*** Platform
***19.*** Ladder
***20.*** Hydraulic cylinder
***21.*** Limiter
***22.*** Lock



## ▪ Dimensions

• GARRA 300 - Plow Scarifier with Automatic Shank (Single Roller)

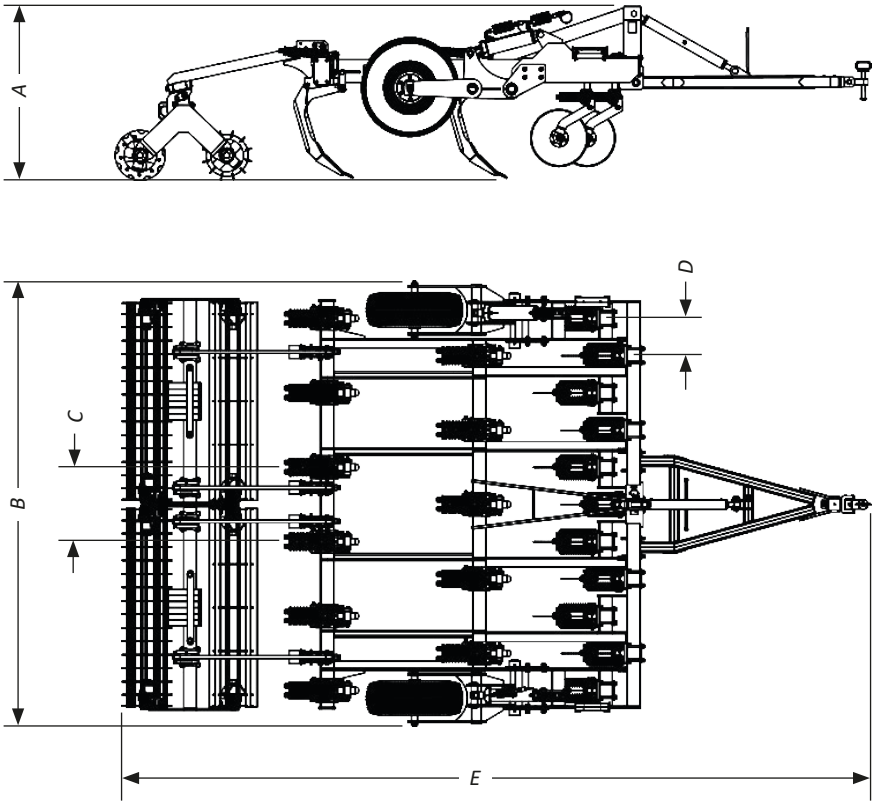



| Model | Nr of Shank | Measurement | | | | |
|---|---|---|---|---|---|---|
| | | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) |
| GARRA 300 | 7 | 1364 | 2412 | 600 | 300 | 5518 |
| | 9 | 1364 | 3014 | 600 | 300 | 5518 |
| | 11 | 1364 | 3585 | 600 | 300 | 5518 |
| | 13 | 1364 | 4224 | 600 | 300 | 5518 |
| | 15 | 1364 | 4806 | 600 | 300 | 5518 |
| | 17 | 1364 | 5406 | 600 | 300 | 5518 |

## ▪ Dimensions

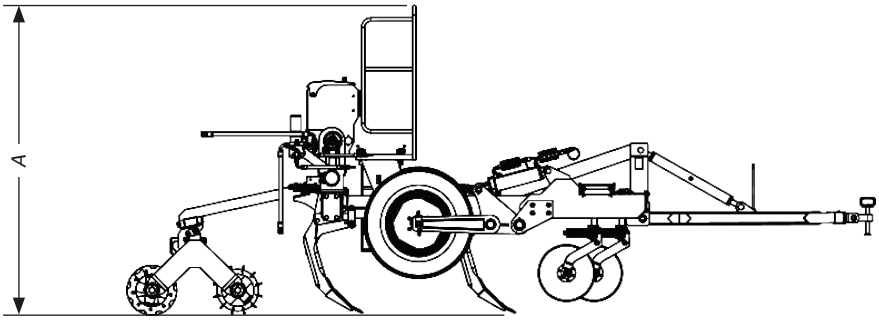
• GARRA 300 - Plow Scarifier with Automatic Shank (Double Roller)

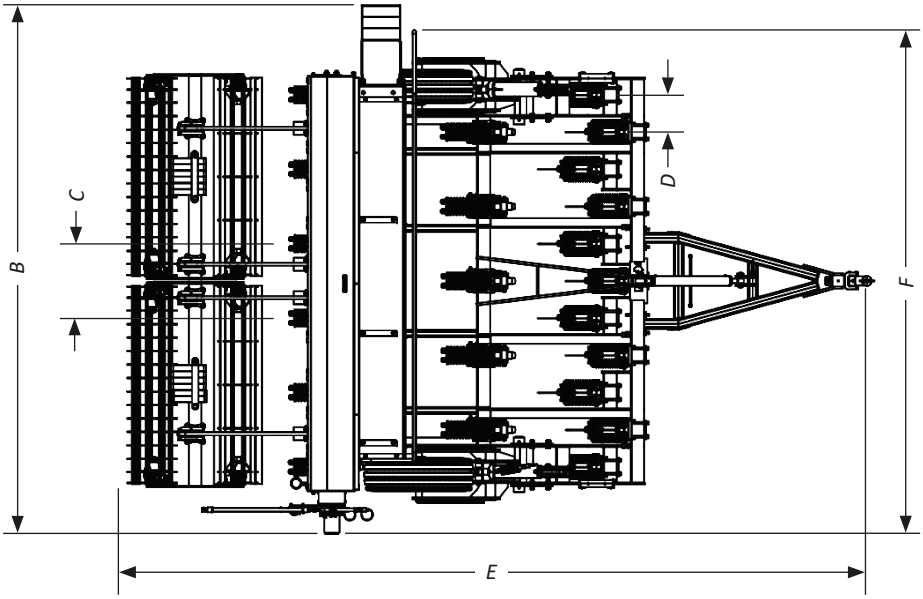



| Model | Nr of Shank | Measurement | | | | |
|---|---|---|---|---|---|---|
| | | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) |
| GARRA 300 | 7 | 1364 | 2412 | 600 | 300 | 6052 |
| | 9 | 1364 | 3014 | 600 | 300 | 6052 |
| | 11 | 1364 | 3585 | 600 | 300 | 6052 |
| | 13 | 1364 | 4224 | 600 | 300 | 6052 |
| | 15 | 1364 | 4806 | 600 | 300 | 6052 |
| | 17 | 1364 | 5406 | 600 | 300 | 6052 |

## ▪ Dimensions

• GARRA 300 - Plow Scarifier with Automatic Shank (Seed Tank)




| Model | Nr of Shank | Measurement | | | | | |
|---|---|---|---|---|---|---|---|
| | | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
| GARRA 300 | 7 | 2476 | 3071 | 600 | 300 | 6052 | 2874 |
| | 9 | 2476 | 3673 | 600 | 300 | 6052 | 3476 |
| | 11 | 2476 | 4256 | 600 | 300 | 6052 | 4059 |
| | 13 | 2476 | 4883 | 600 | 300 | 6052 | 4685 |

## ▪ Specifications

### • GARRA 300 - Plow Scarifier with Automatic Shank (Single Roller)

| Model | Nr of Shank | Nr of Discs | Leveler Rollers (mm) | Working Width (mm) | Approximate Weight (Kg) | Tractor Power (CV) |
|---|---|---|---|---|---|---|
| GARRA 300 | 7 | 7 | 1 x 2150 | 2100 | 1985 | 90 to 105 |
| | 9 | 9 | 2 x 1300 | 2700 | 2412 | 110 to 135 |
| | 11 | 11 | 2 x 1600 | 3300 | 2809 | 120 to 165 |
| | 13 | 13 | 2 x 1900 | 3900 | 3155 | 165 to 215 |
| | 15 | 15 | 2 x 1300 and 1 x 1600 | 4500 | 3680 | 180 to 225 |
| | 17 | 17 | 2 x 1600 and 1 x 1900 | 5100 | 4192 | 204 to 255 |

*Disc diameter (inch) ..... 18"*
*Minimum spacing between shanks (mm) ..... 300*
*Nr of wheels ..... 2*
*Wheelset ..... 11L-15 x 12 Plies*

### • GARRA 300 - Plow Scarifier with Automatic Shank (Double Roller)

| Model | Nr of Shank | Nr of Discs | Leveler Rollers (mm) | Working Width (mm) | Approximate Weight (Kg) | Tractor Power (CV) |
|---|---|---|---|---|---|---|
| GARRA 300 | 7 | 7 | 1 x 2073 | 2100 | 2205 | 90 to 105 |
| | 9 | 9 | 2 x 1240 | 2700 | 2793 | 110 to 135 |
| | 11 | 11 | 2 x 1528 | 3300 | 3368 | 120 to 165 |
| | 13 | 13 | 2 x 1828 | 3900 | 3701 | 165 to 215 |
| | 15 | 15 | 2 x 1240 and 1 x 1528 | 4500 | 4263 | 180 to 225 |
| | 17 | 17 | 2 x 1528 and 1 x 1828 | 5100 | 4893 | 204 to 255 |

*Disc diameter (inch) ..... 18"*
*Minimum spacing between shanks (mm) ..... 300*
*Nr of wheels ..... 2*
*Wheelset ..... 11L-15 x 12 Plies*

*Baldan reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured. Technical specifications are approximate and informed under normal work conditions.*

## ▪ Specifications

### • GARRA 300 - Plow Scarifier with Automatic Shank (Seed Tank)

| Model | Nr of Shank | Nr of Discs | Leveler Rollers (mm) | Working Width (mm) | Approximate Weight (Kg) | Tractor Power (CV) |
|---|---|---|---|---|---|---|
| GARRA 300 | 7 | 7 | 1 x 2073 | 2100 | 2482 | 90 to 105 |
| | 9 | 9 | 2 x 1240 | 2700 | 3090 | 110 to 135 |
| | 11 | 11 | 2 x 1528 | 3300 | 3695 | 120 to 165 |
| | 13 | 13 | 2 x 1828 | 3900 | 4069 | 165 to 215 |

*Disc diameter (inch) ..... 18"*
*Minimum spacing between shanks (mm) ..... 300*
*Nr of wheels ..... 2*
*Wheelset ..... 11L-15 x 12 Plies*

*Baldan reserves the right to change and/or perfect the technical characteristics of its products, without previous notice, and without obligation to proceed in the same way with the products previously manufactured. Technical specifications are approximate and informed under normal work conditions.*

## GARRA 300 INTENDED USE

- **GARRA 300** was developed to loosen compacted soil caused by plowing and harrowing operations or, in the case of no-till farming, the constant traffic of heavy machinery.
- **GARRA 300** should only be driven and operated by a properly instructed operator.

## NON-ALLOWED USE OF GARRA 300

- To avoid damages, severe accidents or death, do NOT transport people on any part of **GARRA 300.**
- It is NOT allowed to use **GARRA 300** to couple, tow, or push other implements or accessories.
- **GARRA 300** should NOT be used by an inexperienced operator who does not knows all the driving, command, and operation techniques.

## ▪ Assembly

The **GARRA 300** is delivered disassembled. To assembly it, follow the instructions below:

⚠ The **GARRA 300** must be assembled by the dealer, by trained, skilled, and qualified personnel for such work.

⚠ Before beginning the assembly of the **GARRA 300**, look for a good place that facilitates the identification of the parts and their assembly.

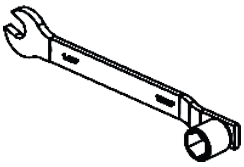
⚠ Do not use loose clothing because they may get caught in **GARRA 300**.

⚠ To assemble **GARRA 300**, place the chassis on 2 (two) trestles at least 850 mm high.

⚠ Use PPE (Safety Equipment).

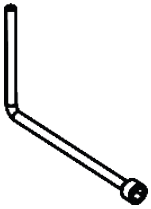
### • Wrench set

**GARRA 300** comes with a wrench set when purchased with fine seed tank, when assembling, disassembling, or maintaining **GARRA 300** with fine seed tank, use the wrench set. The wrench set consists of:



**WRENCH FOR 3/4" AND 7/8" HEX NUT**

**L-WRENCH FOR 5/8" HEX NUT**



**L-WRENCH FOR 1/2" HEX NUT**

⚠ **ATTENTION** | **If any wrench is lost or broken, get another one immediately. Always use original Baldan wrenches.**

## ▪ Assembly

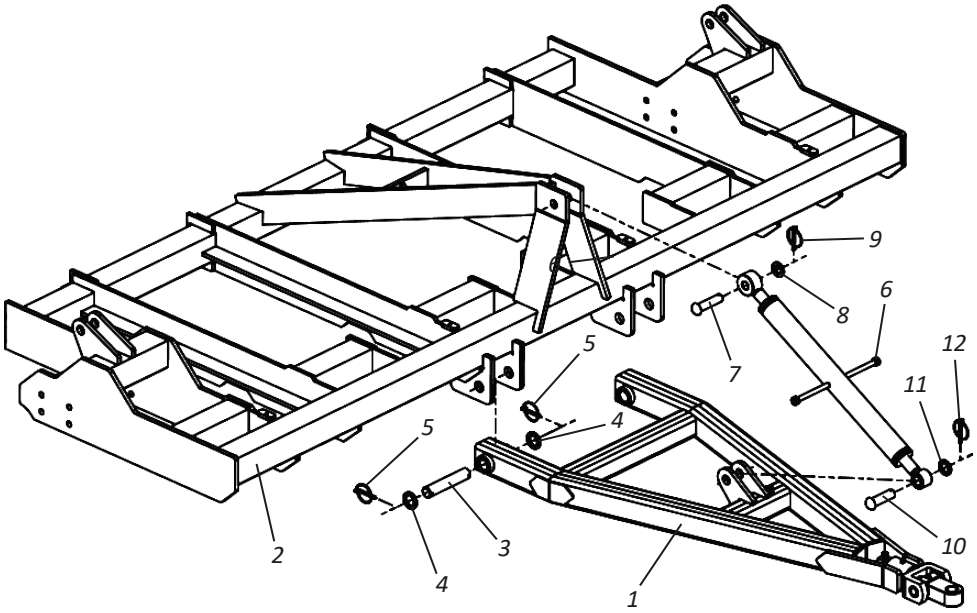
### • Assembling coupling head

To assemble the coupling head (1) , proceed as follows:

***01 -*** Couple the coupling head (1) to the frame (2) fastening with pins (3), flat washers (4) and linchpin (5).

***02 -*** The insert the adjuster (6) into the frame (2) fastening with pins (7), flat washers (8) and linchpin (9).

***03 -*** Then, insert the adjuster (6) in the head (1), fastening with pins (10), flat washers (11) and linchpin (12).



## ▪ Assembly

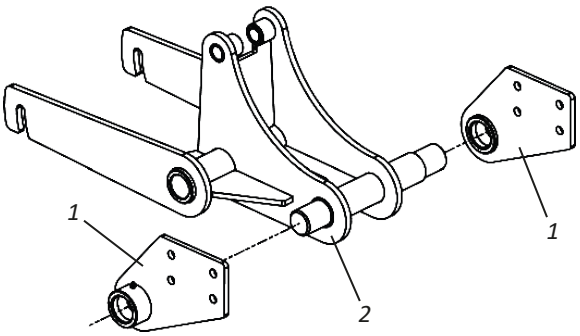
### • Wheel axle assembly

In order to assemble the wheel axle (1), proceed as follows:

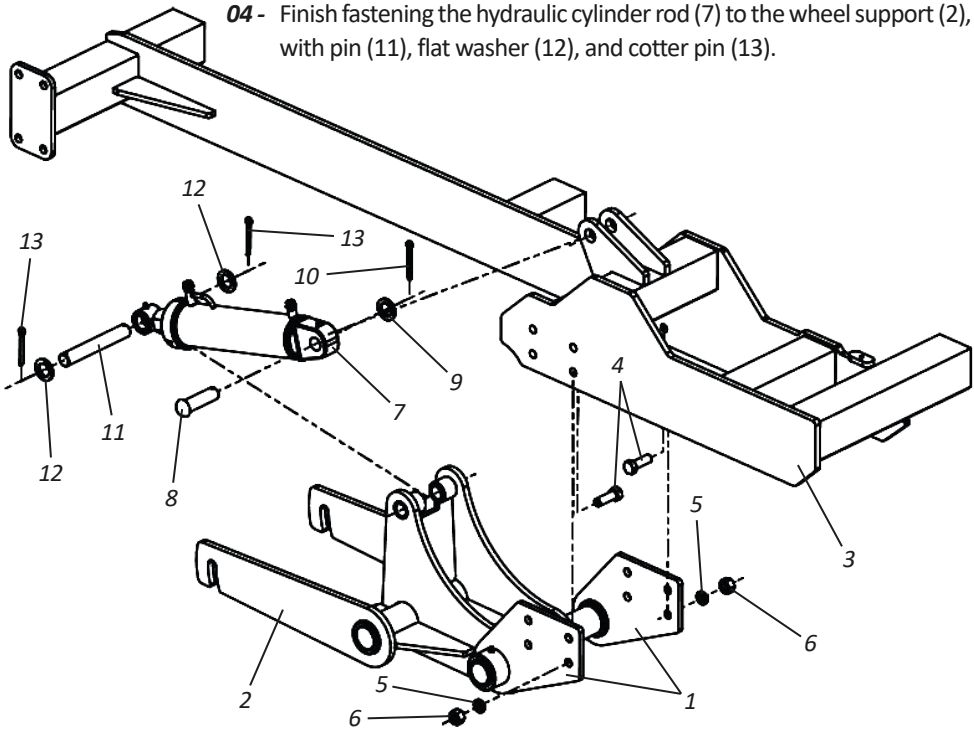
***01 -*** Fasten the plates (1) to the wheel support (2).

***02 -*** Then fasten the plates (1) to the chassis (3) with screws (4), lock washers (5) and nuts (6).

***03 -*** Couple the hydraulic cylinders base (7) to the chassis (3), fastening with pin (8), flat washer (9), and cotte pin (10).




***04 -*** Finish fastening the hydraulic cylinder rod (7) to the wheel support (2), with pin (11), flat washer (12), and cotter pin (13).




**NOTE** | **Reapet the procedure above to assemble the other shaft.**

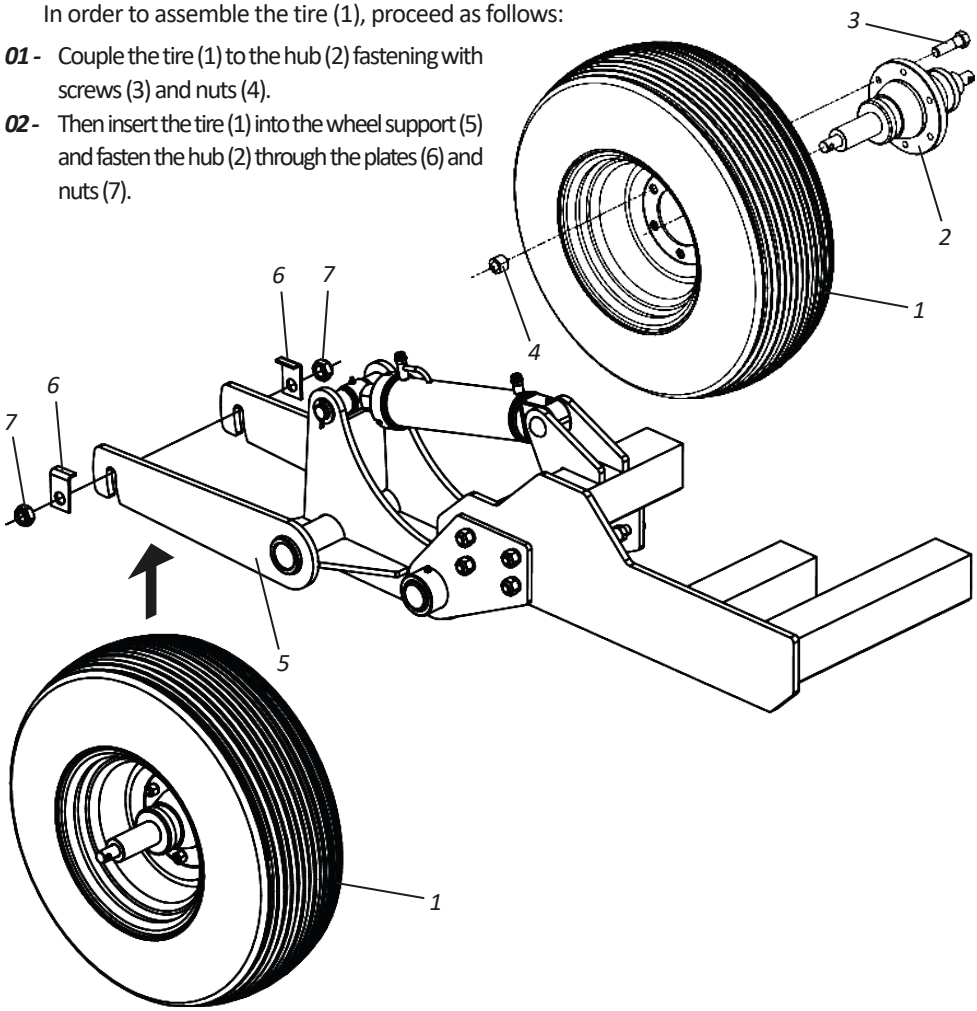
## ▪ Assembly

### • Tires assembly

In order to assemble the tire (1), proceed as follows:

***01 -*** Couple the tire (1) to the hub (2) fastening with screws (3) and nuts (4).

***02 -*** Then insert the tire (1) into the wheel support (5) and fasten the hub (2) through the plates (6) and nuts (7).




**ATTENTION** | **Check the correct tire calibration on page 60.**

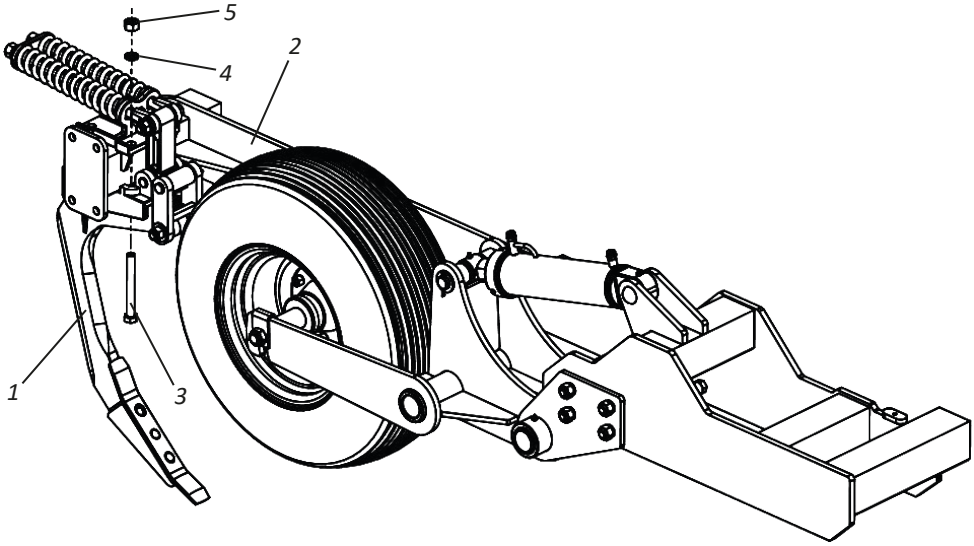
**NOTE** | **Repeat the procedure above to assemble the other tire.**

## ▪ Assembly

### • Rod assembly

In order to assemble the shaft (1), proceed as follows:

***01 -*** Couple the rod (1) to the frame (2) securing with screws (3), flat washers (3), lock washers (4) and nuts (5).

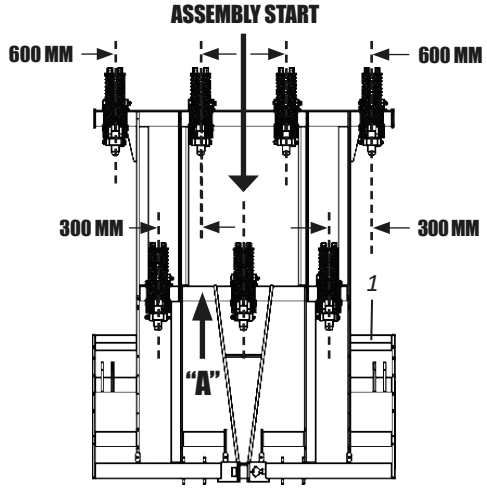



**ATTENTION** | **Check the following pages for the correct assembly of the rods for each model of GARRA 300.**

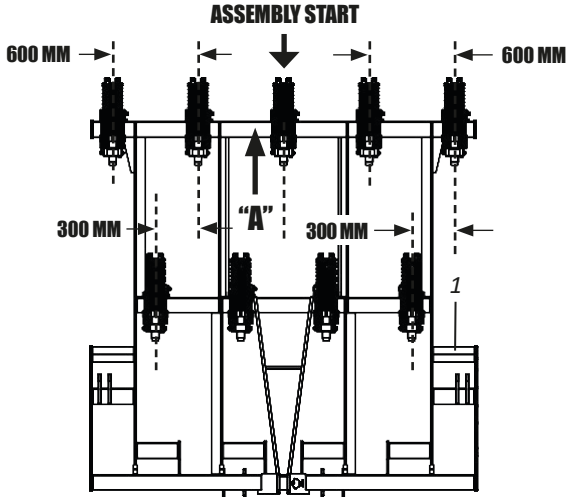
**NOTE** | **Repeat the procedure above to assemble the other rods.**

## ▪ Assembly

• Rod assembly - GARRA 7 rods




• Rod assembly - GARRA 9 rods

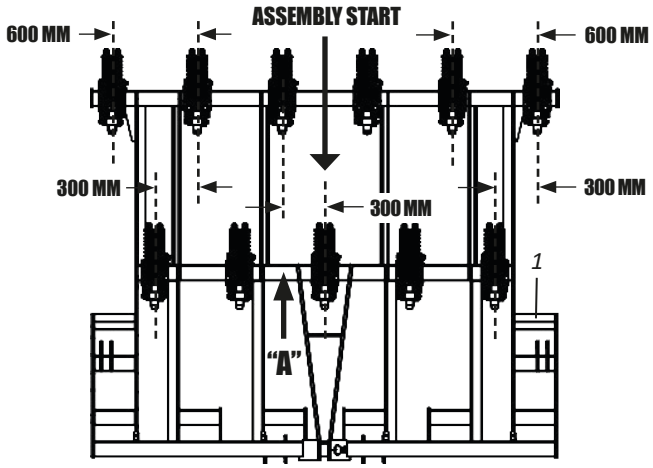



**ATTENTION** The number of assembled rods is odd, so start assembling them from center bar "A" in the frame (1) towards the other rods.

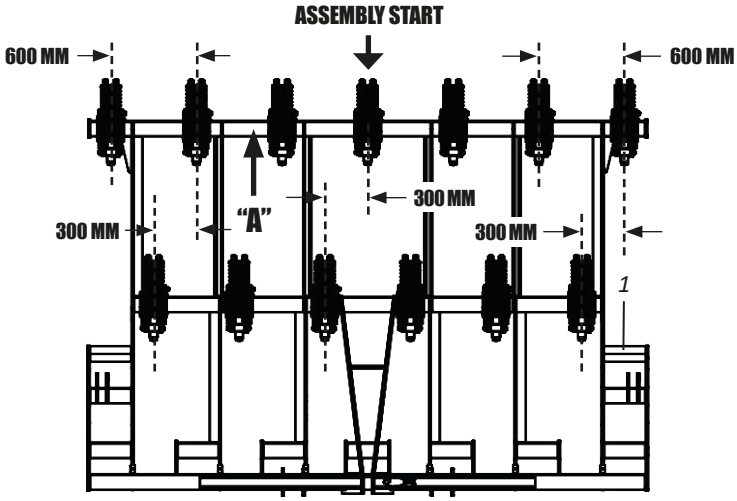
**NOTE** The front section of the scarifier should contain a smaller number of rods than the rear section.

## ▪ Assembly

• Rod assembly - GARRA 11 rods




• Rod assembly - GARRA 13 rods

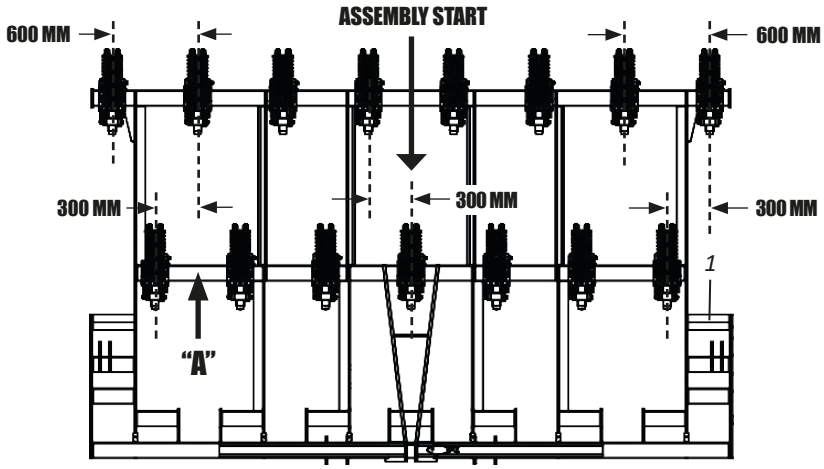



**ATTENTION** The number of assembled rods is odd, so start assembling them from center bar "A" in the frame (1) towards the other rods.

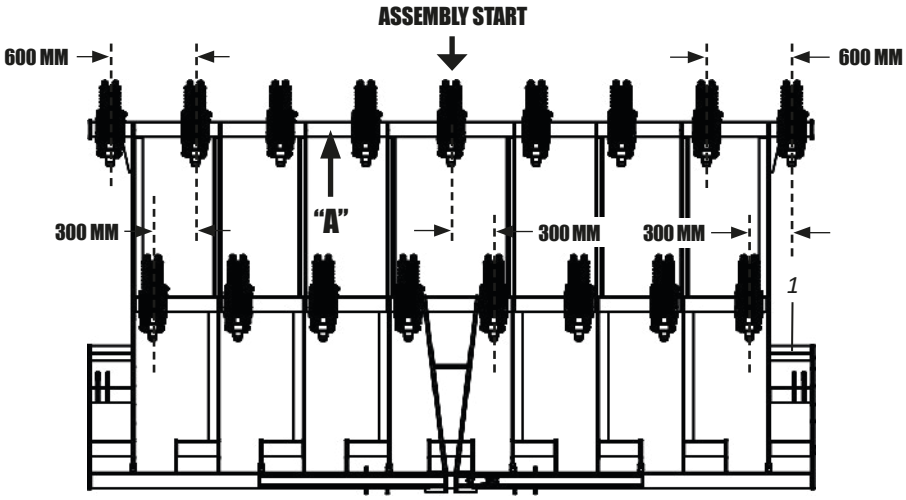
**NOTE** The front section of the scarifier should contain a smaller number of rods than the rear section.

## ▪ Assembly

• Rod assembly - GARRA 15 rods




• Rod assembly - GARRA 17 rods




**ATTENTION** The number of assembled rods is odd, so start assembling them from center bar "A" in the frame (1) towards the other rods.

**NOTE** The front section of the scarifier should contain a smaller number of rods than the rear section.

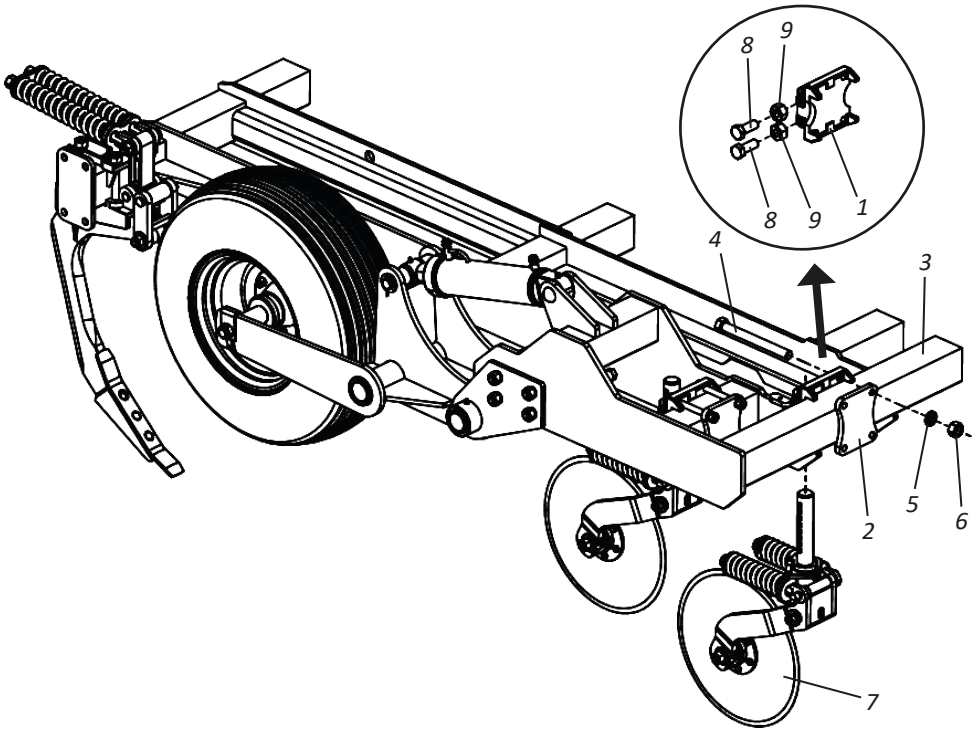
## ▪ Assembly

### • Discs assembly

To assemble the cutting disk, proceed as follows:

***01 -*** Fasten the support bracket (1) and the plate (2) to the frame (3), with screws (4), lock washers (5) and nuts (6).

***02 -*** Then, attach the cutting disc (7) to the support bracket (1), fastening with screws (8), and lock nuts (9).

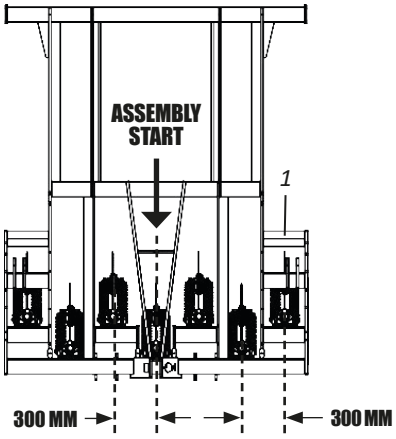



**ATTENTION** | **Check the following pages for the correct assembly of the discs for each model of GARRA 300.**

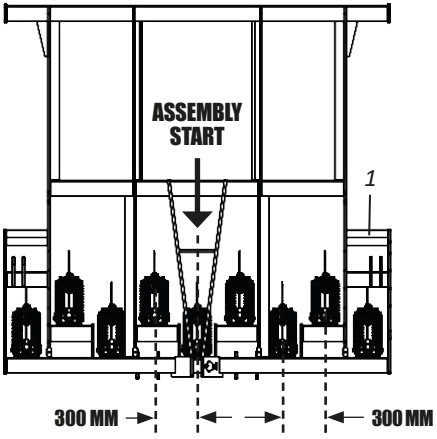
**NOTE** | **Repeat the procedure above to assemble the other discs.**

## ▪ Assembly

• Disc assembly - GARRA 7 rods




• Disc assembly - GARRA 9 rods

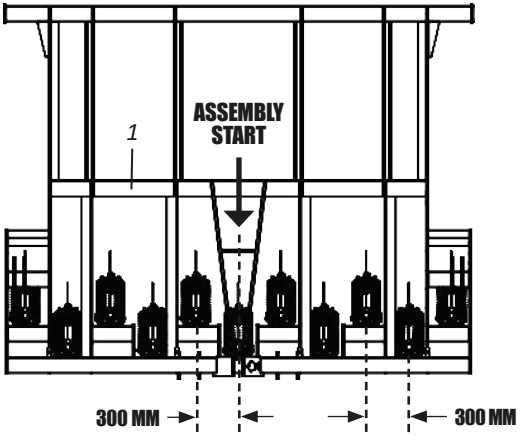



**ATTENTION** | Start assembling the cutting discs from center of the frame (1) towards the others.

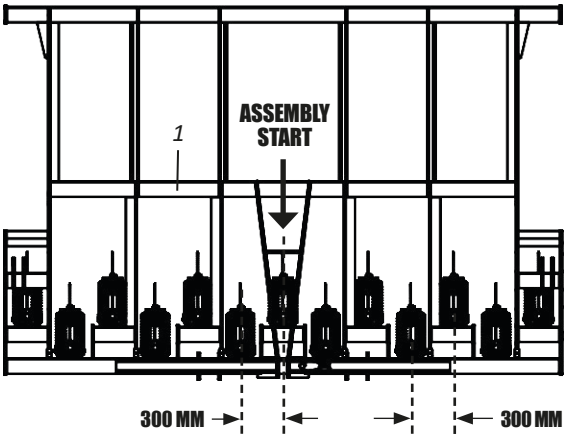
**IMPORTANT** | Cutting discs must be mounted in alignment with the rods.

## ▪ Assembly

• Disc assembly - GARRA 11 rods




• Disc assembly - GARRA 13 rods

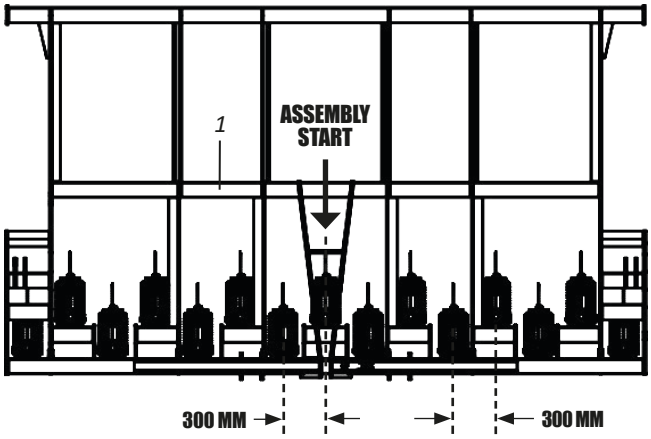



**ATTENTION** | Start assembling the cutting discs from center of the frame (1) towards the others.

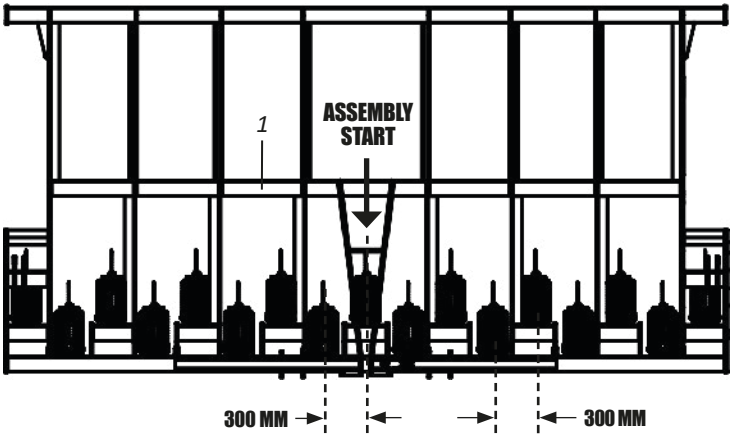
**IMPORTANT** | Cutting discs must be mounted in alignment with the rods.

## ▪ Assembly

• Disc assembly - GARRA 15 rods




• Disc assembly - GARRA 17 rods




**ATTENTION** | Start assembling the cutting discs from center of the frame (1) towards the others.

**IMPORTANT** | Cutting discs must be mounted in alignment with the rods.

## ▪ Assembly

### • Single disking roller assembly (Optional)

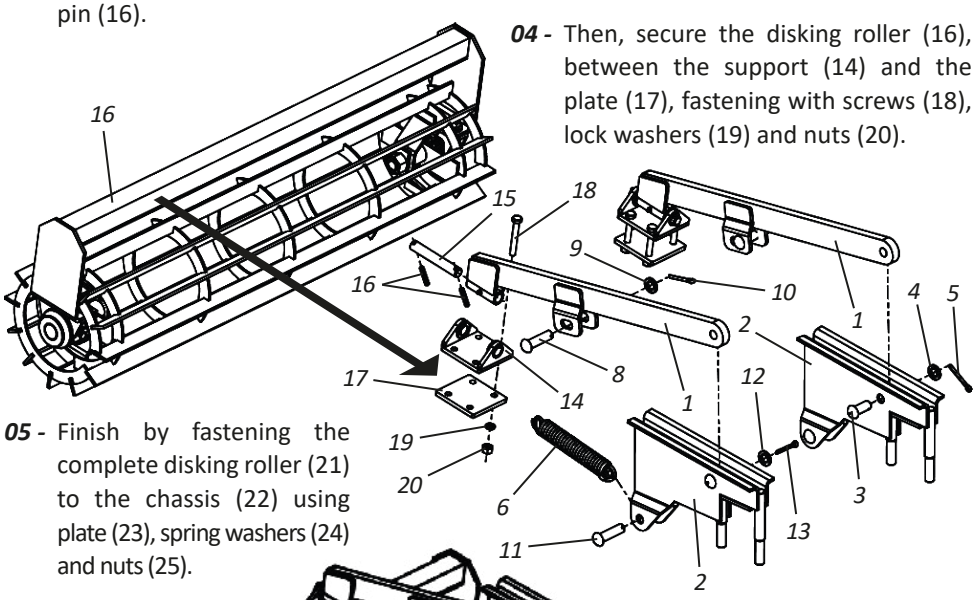
To assemble the single disking roller, proceed as follows:

***01*** - Insert the sway bar (1) between the support (2) and lock with pin (3), flat washers (4) and cotter pin (5).

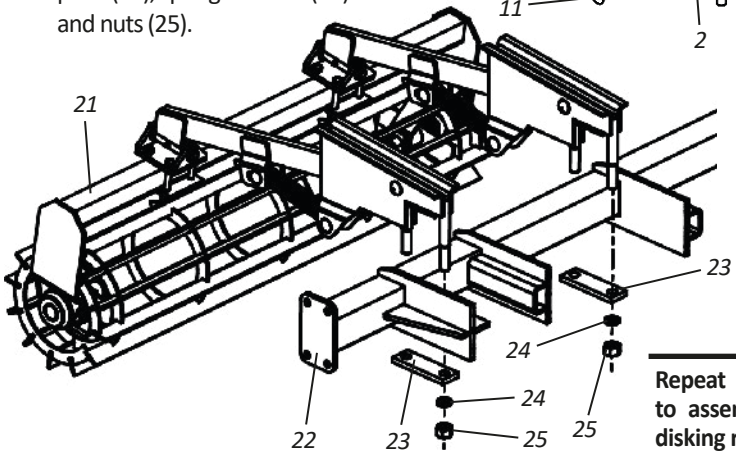
***02*** - Then, connect the spring (6) between the sway bar (1) and the support (2), fastening with pins (8), flat washer (9) cotter pin (10) and pin (11), flat washer (12) and cotter pin (13).

***03*** - Then, attach the support (14) to the sway bar (1), fastening with pin (15) and elastic pin (16).

***04*** - Then, secure the disking roller (16), between the support (14) and the plate (17), fastening with screws (18), lock washers (19) and nuts (20).




***05*** - Finish by fastening the complete disking roller (21) to the chassis (22) using plate (23), spring washers (24) and nuts (25).




**NOTE**

**Repeat the procedure above to assemble the other single disking roller.**

## ▪ Assembly

### • Doble disking roller assembly (Optional) - Part I

To assemble the double disking roller, proceed as follows:

***01*** - Couple the UHMW plate (1) to the supporte plate (2) by securing through the screws (3).

***02*** - Then, couple support plate (2) to the support (4), fastening with screws (5), flat washer (6) and nuts (7).

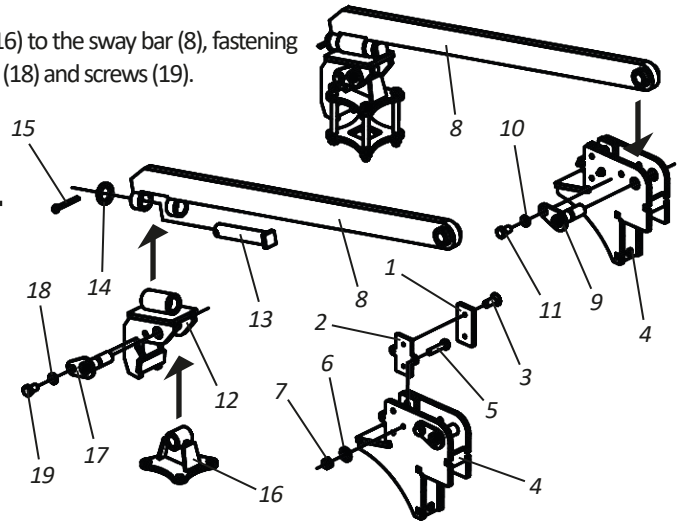
***03*** - Then, insert the sway bar (8) into the support (4) fastening with screw (9), lock washer (10) and screw (11).

***04*** - Then, couple the support (12) to the sway bar (8), fastening with pin (13), flat washer (14) and cotter pin (15).

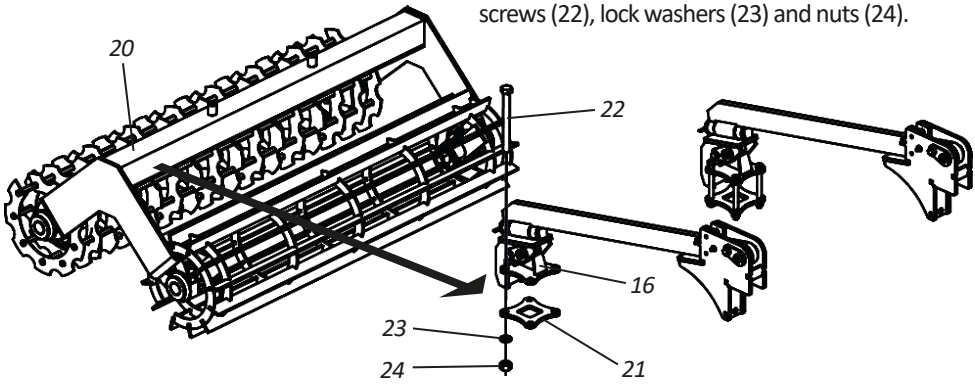
***05*** - Then coule the support (16) to the sway bar (8), fastening with pin (17), lock washer (18) and screws (19).

**⚠ ATTENTION**

**Before mounting the sway bar (8), always fit the UHMW plate (1) as it prevents friction between the sway bar (8) and the support (4). When checking friction between the sway bar (8) and the support (4), immediately replace the UHMW plate (1).**




***06*** - Then fasten the disking roller (20), between the support (16) and the plate (21), fastening with screws (22), lock washers (23) and nuts (24).

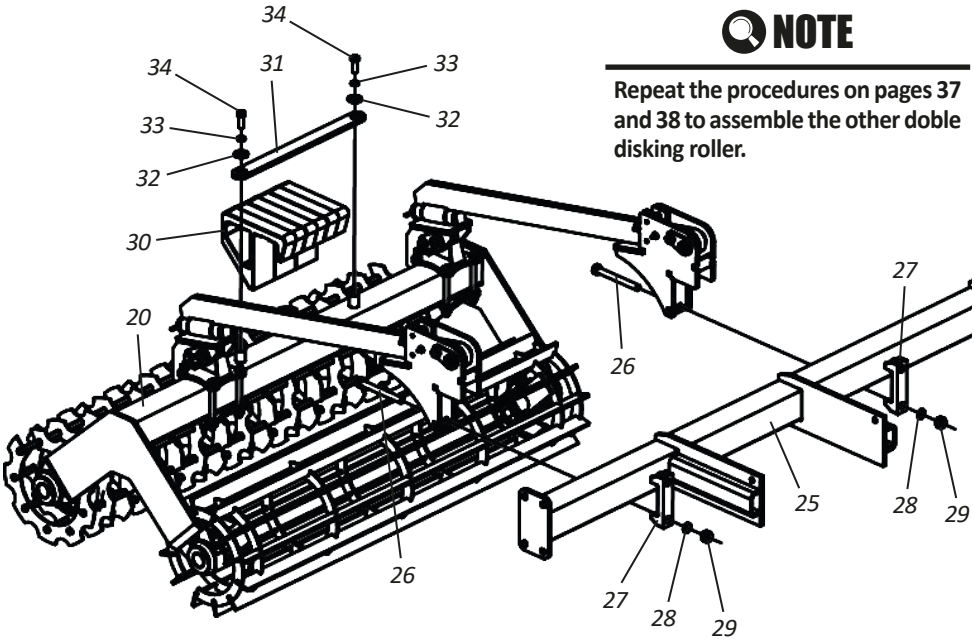


## ▪ Assembly

### • Doble disking roller assembly (Optional) - Part II

***07 -*** Then, fasten the double disking roller (20) to the chassis (25) using screw (26), clamp (27), lock washer (28) and nut (29).

***08 -*** Finish by fastering the counterweights (30) to the double disking roller (20) using the bar (31), flat washer (32), lock washer (33), and nuts (34).




**NOTE**

**Repeat the procedures on pages 37 and 38 to assemble the other doble disking roller.**

**ATTENTION**

**Each counterweight (30) weighs 15 kg. DO NOT put more than 3 counterweights per double disking roller. Ignoring this warning may cause damage to GARRA 300.**

**IMPORTANT**

**Counterweights (30) are placed only on the double disking roller (20). These counterweights (30) assist the double disking roller (20) in reducing clods on hard terrains. Counterweights (30) can be easily removed or placed according to your work needs.**

## ▪ Assembly

### • Platform assembly (Optional)

**GARRA 300** has an access platform when purchased with seed tank. To assemble the platform, proceed as follows:

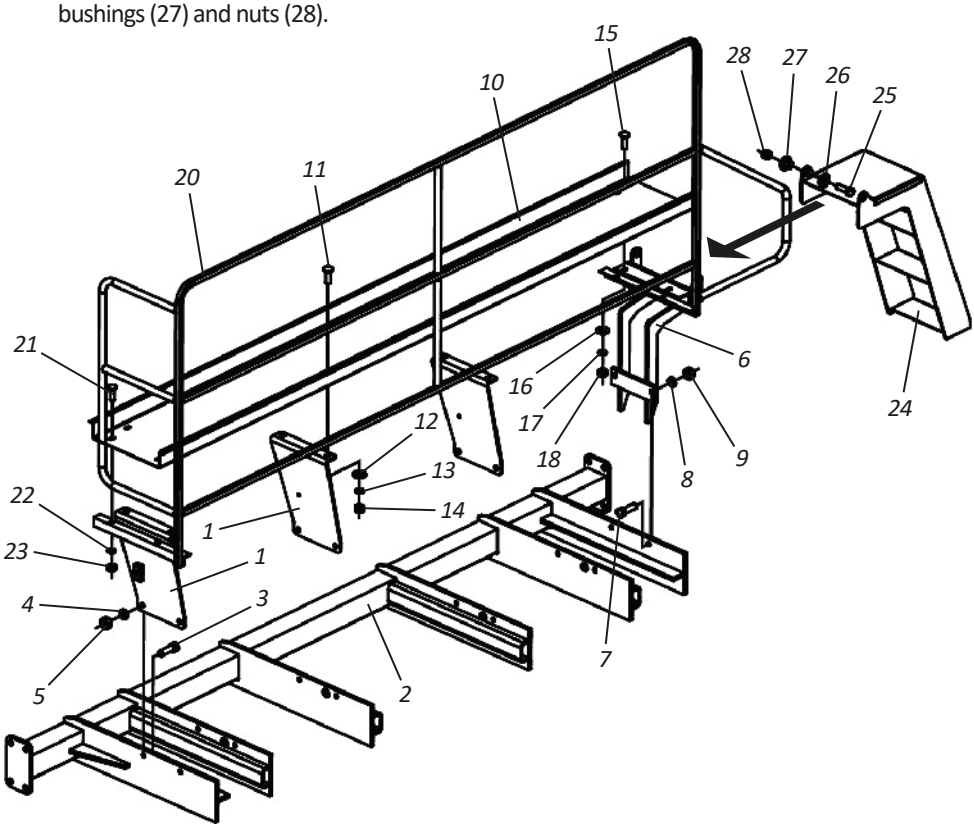
***01 -*** Then fasten the supports (1) to the chassis (2) using screws (3), lock washers (4) and nuts (5).

***02 -*** Then fasten the side support (6) to the chassis (2) using screws (7), lock washers (8) and nuts (9).

***03 -*** Then, couple the platform (10) to the supports (1) with screws (11), flat washers (12), lock washers (13), nuts (14) and to the side support (6) with screws (15), flat washer (16), lock washers (17), and nuts (18).

***04 -*** Then fasten the handrail (20) to the plataform (10) using screw (21), lock washer (22), and nut (23).

***05 -*** Finish by fastering the ladder (24) to the side support (6) with screws (25), flat washers (26), bushings (27) and nuts (28).

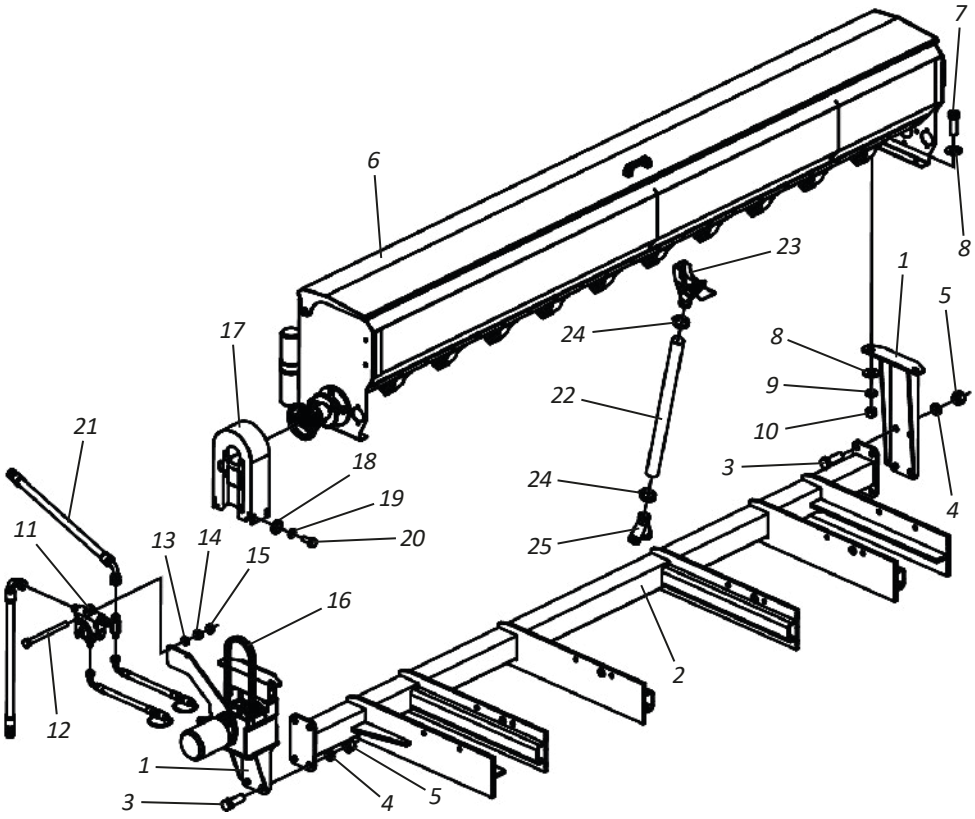


## ▪ Assembly

### • Seed tank assembly (Optional)

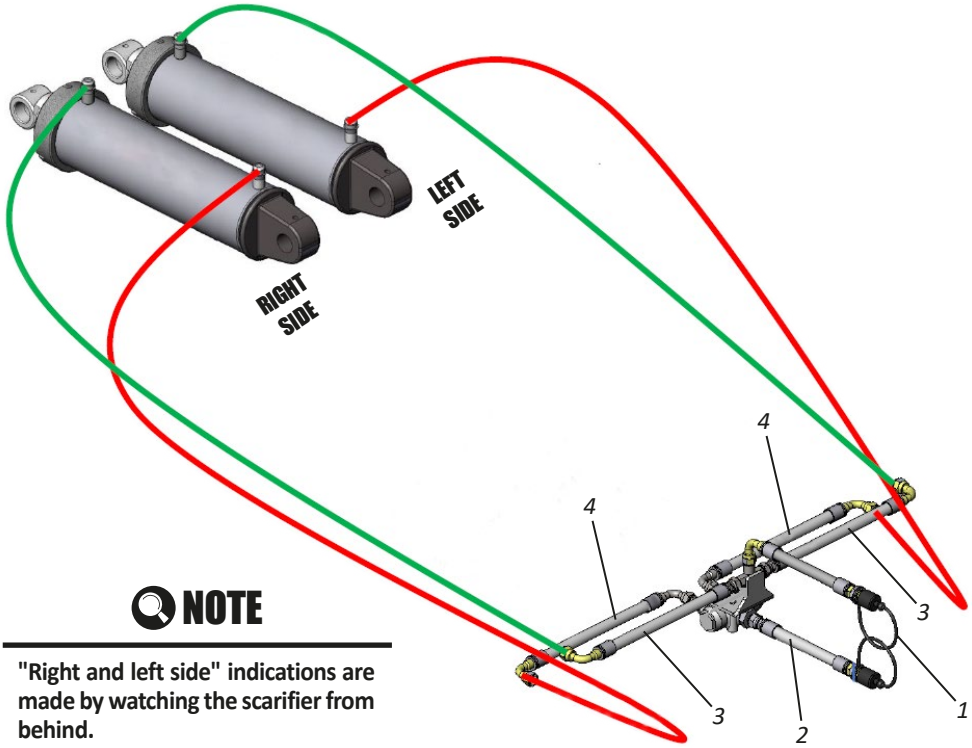
When **GARRA 300** is purchased with seed tank, after mounting the platform, assemble it, proceeding as follows:

***01 -*** Fasten the supports (1) to the chassis (2), with screws (3), flat washers, lock washers (4) and nuts (5).
***02 -*** Then, couple the seed tank (6) to the supports (1), using screws (7), flat washers (8), lock washers (9) and nuts (10).
***03 -*** Then couple the valve (11) with screws (12), flat washers (13), lock washers (14) and nuts (15).
***04 -*** Then put the chain (16) and fasten the protective cover (17) to the support (1) using flat washer (18), lock washer (19) and screw (20).
***05 -*** Then, couple the hydraulic hoses (21) to the valve (11).
***06 -*** Finish by coupling the hoses (22) to the seed tank (6) with cups (23), clamps (24), and Y nozzles (25).



## ▪ Assembly

### • Hydraulic system assembly - GARRA 7/9/11/13/15/17 Rods



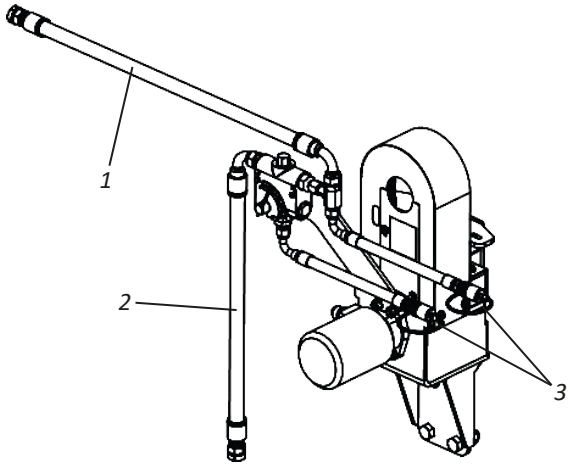

**NOTE**

**"Right and left side" indications are made by watching the scarifier from behind.**

| ITEM | PRODUCT DESCRIPTION | ALL | GARRA 7 | GARRA 9 | GARRA 11 | GARRA 13 | GARRA 15 | GARRA 17 |
|---|---|---|---|---|---|---|---|---|
| 1 | Hose Hydraulic 3/8" x 3000 mm w/ 1TCG and 1TRF w/ quick hitch | 1 | | | | | | |
| 2 | Hose Hydraulic 3/8" x 3000 mm w/ 1TRG and 1TRF w/ quick hitch | 1 | | | | | | |
| 3 | Hose Hydraulic 3/8" x 3000 mm w/ 1TRG and 1TCG | | 2 | | | | | |
| 3 | Hose Hydraulic 3/8" x 3500 mm w/ 1TRG and 1TCG | | | 2 | 2 | | | |
| 3 | Hose Hydraulic 3/8" x 4000 mm w/ 1TRG and 1TCG | | | | | 2 | 2 | |
| 3 | Hose Hydraulic 3/8" x 4500 mm w/ 1TRG and 1TCG | | | | | | | 2 |
| 4 | Hose Hydraulic 3/8" x 2500 mm w/ 2TCG | | 2 | | | | | |
| 4 | Hose Hydraulic 3/8" x 3000 mm w/ 2TCG | | | 2 | 2 | | | |
| 4 | Hose Hydraulic 3/8" x 3500 mm w/ 2TCG | | | | | 2 | 2 | |
| 4 | Hose Hydraulic 3/8" x 4000 mm w/ 2TCG | | | | | | | 2 |

## ▪ Assembly

### • Transmission hydraulic assembly - Seed tank (Optional)




| ITEM | PRODUCT DESCRIPTION | ALL | GARRA 7 RODS | GARRA 9 RODS | GARRA 11 RODS | GARRA 13 RODS |
|---|---|---|---|---|---|---|
| 1 | Hose Hydr. High Pressure 3/4" x 800 mm w/ 1TCG and 1TRG (SAE 100 R2 AT-P.T 3.100 PSI) | 1 | | | | |
| 2 | Hose Hydr. High Pressure 3/4" x 600 mm w/ 1TCG and 1TRG (SAE 100 R2 AT-P.T 3.100 PSI) | 1 | | | | |
| 3 | Hose Hydr. 1/2" x 6400 mm c/ 1TCG and 1TRF w/ quick hitch | | 2 | | | |
| 3 | Hose Hydr. 1/2" x 6700 mm c/ 1TCG and 1TRF w/ quick hitch | | | 2 | | |
| 3 | Hose Hydr. 1/2" x 7000 mm c/ 1TCG and 1TRF w/ quick hitch | | | | 2 | |
| 3 | Hose Hydr. 1/2" x 7400 mm c/ 1TCG and 1TRF w/ quick hitch | | | | | 2 |

**⚠ ATTENTION** **When completing the hydraulic system assembly, make a complete check on GARRA 300. Retighten all screws and nuts, check all pins, cotter pins and locks, check all hoses.**

## ▪ Hitch

### • Scarifier hitch

To attach **GARRA 300** to the tractor drawbar, follow the instructions bellow:

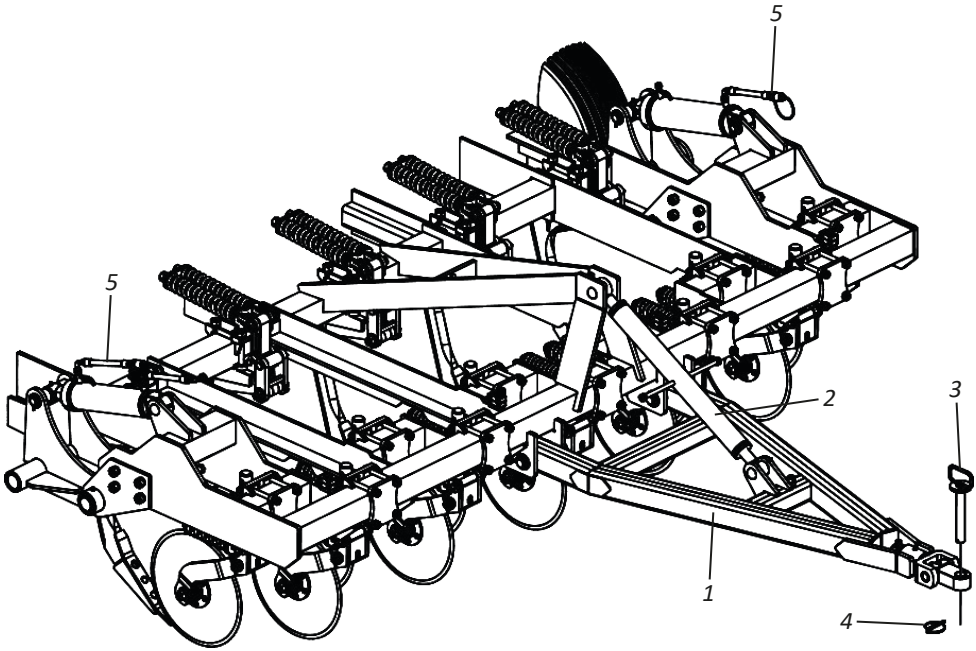
- Before hitching **GARRA 300**, look for a safe and easily accessible place.
- Always use low gear with low acceleration.
- Before connecting or disconnecting the hydraulic hoses, stop the engine and relieve circuit pressure by fully turning the control levers.
- When relieving system pressure, make sure that there are no accidents when the equipment is moving.

Observe the instructions above, proceed as follows:

***01*** - Level the coupling head (1) of **GARRA 300** with the tractor's hitch using the adjuster (2). Then, slowly approach the tractor to **GARRA 300** in reverse, paying attention when to use the brakes.

***02*** - Hitch **GARRA 300** to the tractor by fastening with hitch pin (3) and linchpin (4).

***03*** - Finish by coupling the hoses (5) to the tractor quick hitch.

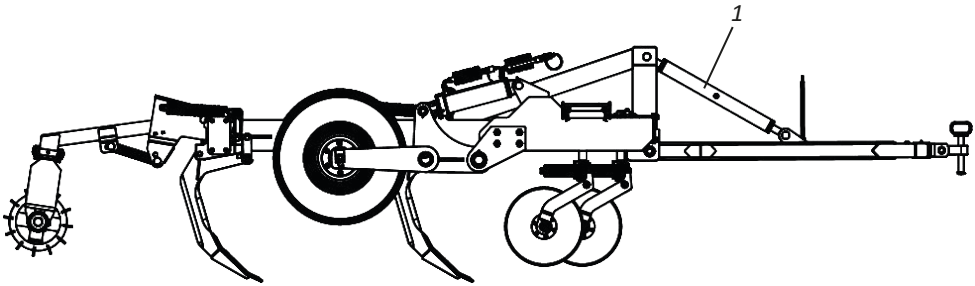


## ▪ Hitch

### • Scarifier leveling

To level **GARRA 300**, proceed as follows:

***01 -*** First, the tractor must be in a flat location.
***02 -*** Then level **GARRA 300** using the adjuster (1).

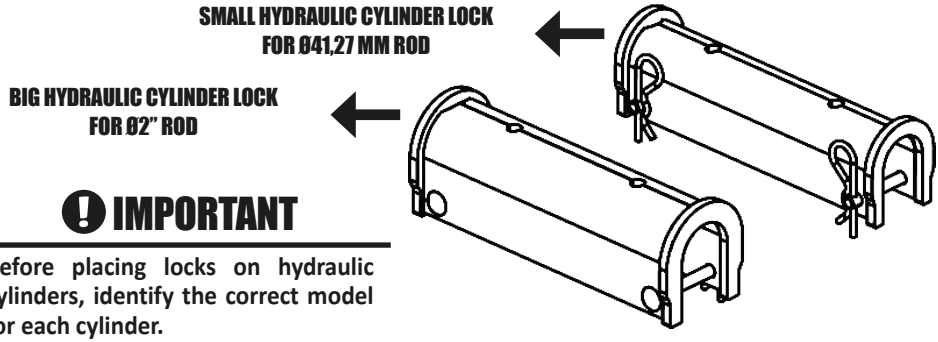



**ATTENTION** | **The shaft should be parallel to the ground, meaning, they all must touch the same surface.**

## ▪ Adjustments

### • Adjustment for transport - Part I

**GARRA 300** has 2 different lock models to be used in th hydraulic cylinders for transportation. The two locking models are:




**IMPORTANT**

**Before placing locks on hydraulic cylinders, identify the correct model for each cylinder.**

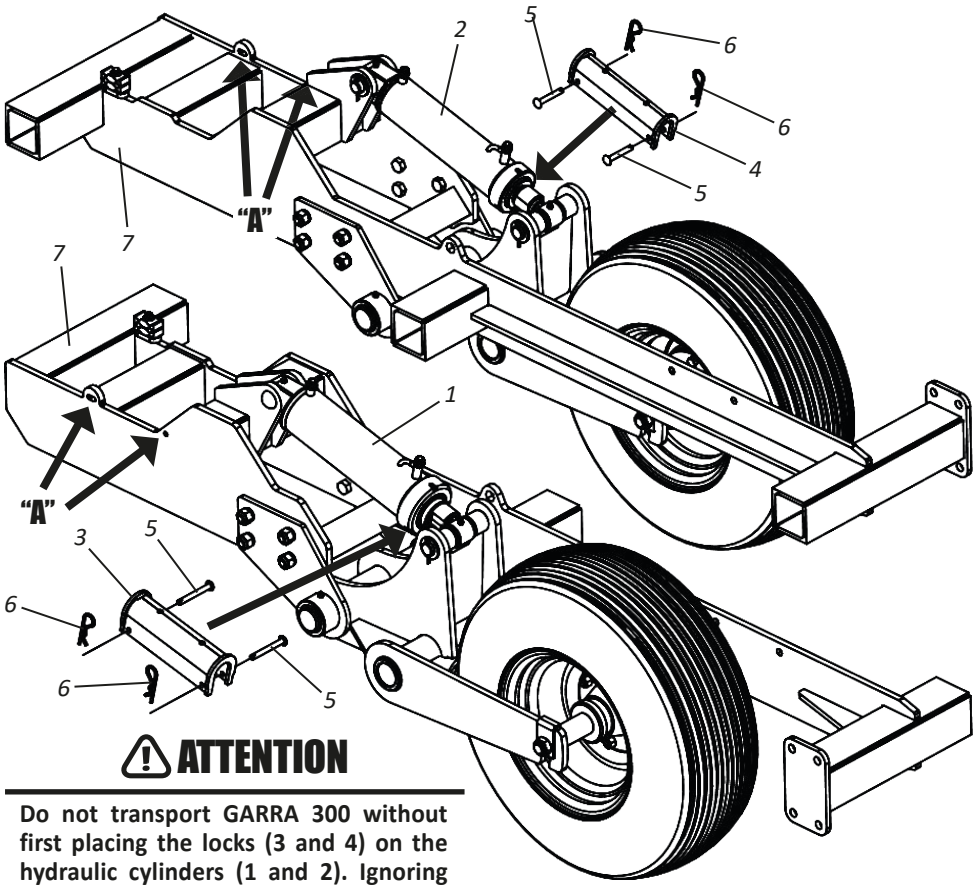
Before starting to transport **GARRA 300**, check the following page for instructions on securing the locks to the hydraulic cylinders.

## ▪ Adjustments

### • Adjustment for transport - Part II

To lock the latches on the hydraulic cylinders, proceed as follows:

***01*** - Drive the hydraulic cylinders (1 and 2) fully open.
***02*** - Then it the locks (3 and 4) corresponding to each hydraulic cylinder.
***03*** - Then fasten the pins (5) and locks (6).




**⚠ ATTENTION**

**Do not transport GARRA 300 without first placing the locks (3 and 4) on the hydraulic cylinders (1 and 2). Ignoring this warning may cause damages to the scarifier.**

**NOTE**

**After transporting GARRA 300, remove the locks (3 and 4) from the hydraulic cylinders (1 and 2) and fasten them again to the chassis (7) as shown in detail "A" with pins (5) and lock (6).**

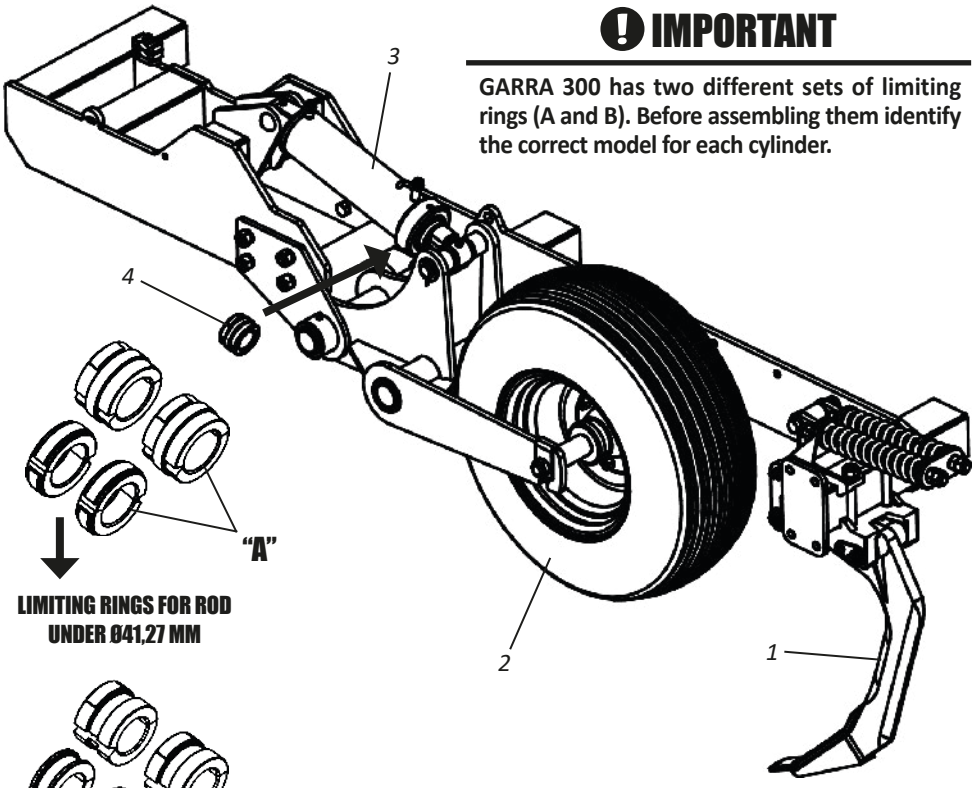
## ▪ Adjustments

### • Rod depth adjustment

The working depth of the rods (1) is limited by the wheels (2) which are driven by the hydraulic cylinders (3). In order to limit the rods working depth (1), proceed as follows:

***01 -*** First, determine the working depth of the rods (1).

***02 -*** Then, lift the wheels (2) through the hydraulic cylinders (3) up to the specified measurement place the limiting rings (4) on the hydraulic cylinder rods (3).




**IMPORTANT**

**GARRA 300 has two different sets of limiting rings (A and B). Before assembling them identify the correct model for each cylinder.**

**ATTENTION**

**After adjustments, GARRA 300 will always operate at the same depth, both in hard and soft ground, this is because its limiting rings (4) are limiting the hydraulic cylinder stroke (3), preventing the oscillation of the wheels, always keeping the same depth.**

## ▪ Adjustments

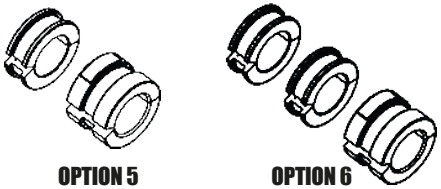
### • Limiting rings combinations

Limiting ring assemblies (A and B) **mentioned on the previous page** have different sizes, which, when combined as below, offer various depth settings.

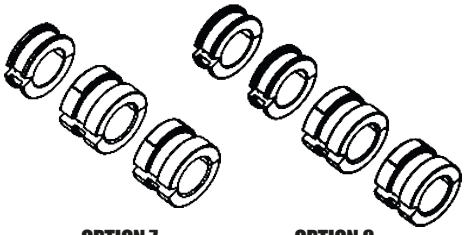
**LIMITING RINGS FOR SHAFT UNDER Ø41,27 MM**

OPTION 1 OPTION 2

OPTION 3 OPTION 4



OPTION 5 OPTION 6

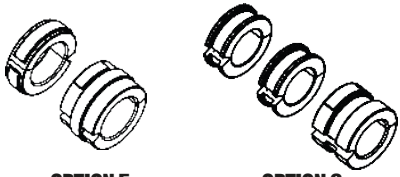


OPTION 7 OPTION 8

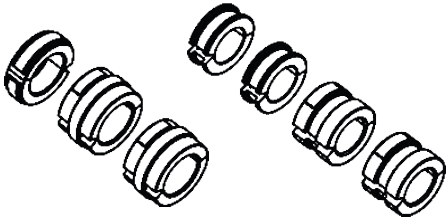
**LIMITING RINGS FOR SHAFT OVER Ø2"**

OPTION 1 OPTION 2

OPTION 3 OPTION 4



OPTION 5 OPTION 6



OPTION 7 OPTION 8

### • Auto tripping

The automatic tripping system allows the scarifying rods (1) to trip when hitting obstacles. To return to the working position, simply lift the scarifier and reverse it to reset the system.

## ▪ Adjustments

### • Automatic trip load setting

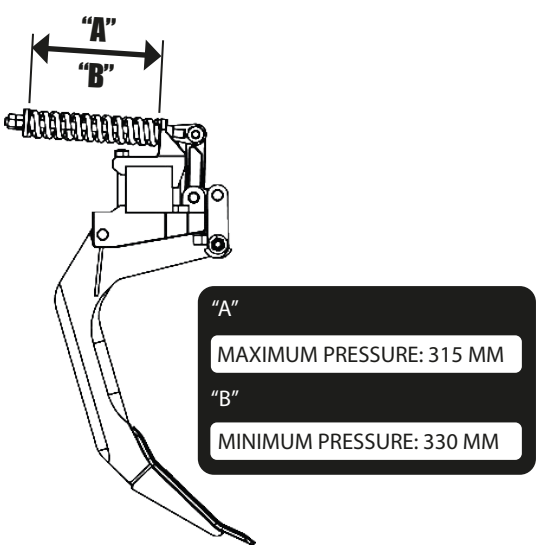
For soils that are free of obstacles such as stones, roots, etc., pressure regulator springs (2 and 3) length must be **330 mm (minimum pressure)**.

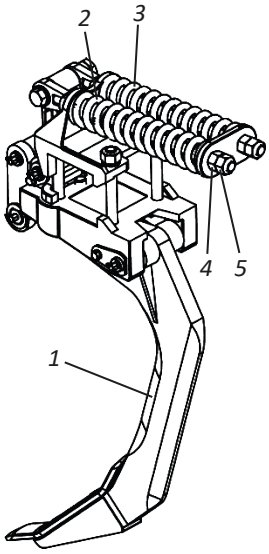
To increase the tripping resistance of the rod in soils with obstacles, the pressure regulator springs (2 and 3) can be adjusted up to a length of **315 mm (maximum pressure)**.

To adjust the rod tripping resistance, proceed as follows:

***01 -*** Turn locknut (4) and nut (5) clockwise for **Greater Resistance to Tripping.**

***02 -*** Turn locknut (4) and nut (5) counterclockwise to **Decrease Tripping Resistance.**




**IMPORTANT**

**Never work with a spring length under 315 mm, as it may lock the system and damage the scarifier. When adjusting the rod tripping resistance, both springs should have the same length. Ignoring this warning will overload one side of the rod support and damage it.**

**ATTENTION**

**Further adjustments to the rod disassembly system are not necessary. If it is tripping, check the soil conditions, which must be too hard or have a high compression rate.**

**NOTE**

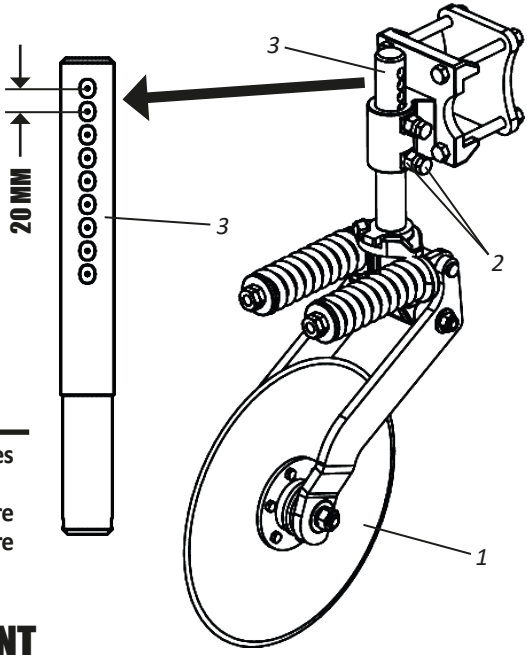
**For greater vibration scarifying efficiency, work at the lowest possible pressure, if the rod does not trip under normal working conditions.**

## ▪ Adjustments

### • Depth adjustment and cutting disc pressure

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

***01 -*** Loosen screws and nuts (2) and move the axle (3) to the desired adjustment. Then retighten screws and locknuts (2).




**NOTE**

**Each shaft bore (3) lowers or raises the disc (1) by 20 mm.**
**After adjusting the depth and pressure of the cutting disc, repeat this procedure on all discs.**

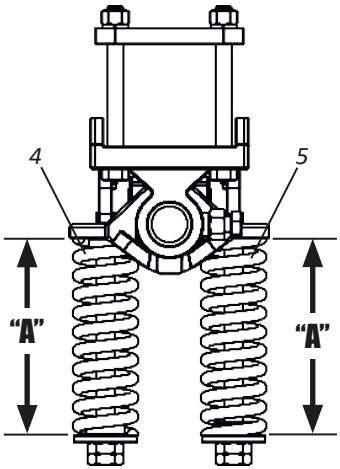
**IMPORTANT**

**Cutting disc (1) depth and pressure must be adjusted in the field before starting the work, observing the type of soil to be worked to obtain a better performance from GARRA 300.**

**ATTENTION**

**Do not change the pressure of the springs (4 and 5), since they are adjusted at the factory with optimum working pressure, as shown in measurement "A". Changing the pressure of the springs (4 and 5) can cancel the articulation action of the cutting disc.**

| "A" - Ideal work pressure | 190 MM |
|---|---|

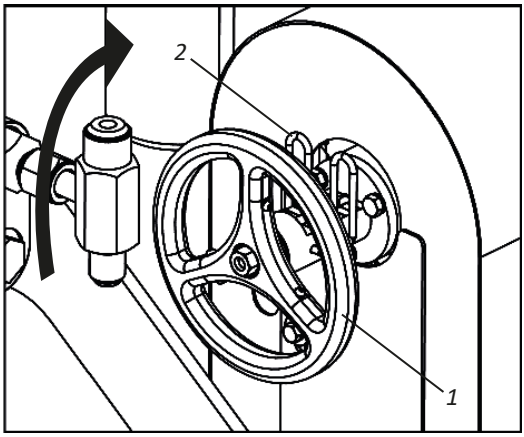


## ▪ Seed distribution system

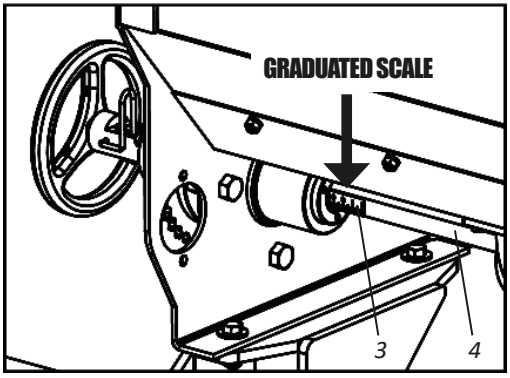
### • Seed distribution adjustment - Part I

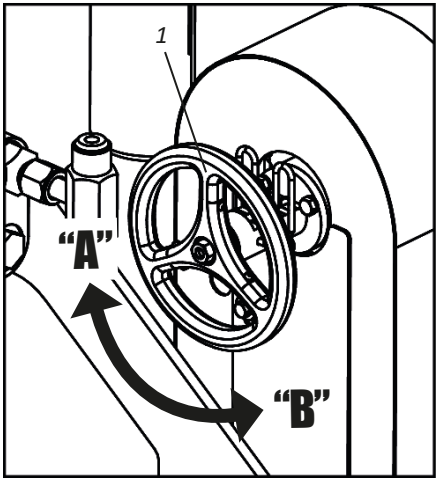
To adjust the seed distribution, proceed as follows:

***01 -*** Unlock the handwheel (1) using the lock (2).




***02 -*** Then turn the handwheel (1) towards **"A"** or **"B"** adjusting seed distribution using the graduated ladder (3) fixed to the axle (4) according to your work needs or conditions.




Turning the handwheel towards"A".

The scale closes

Turning the handwheel towards "B".

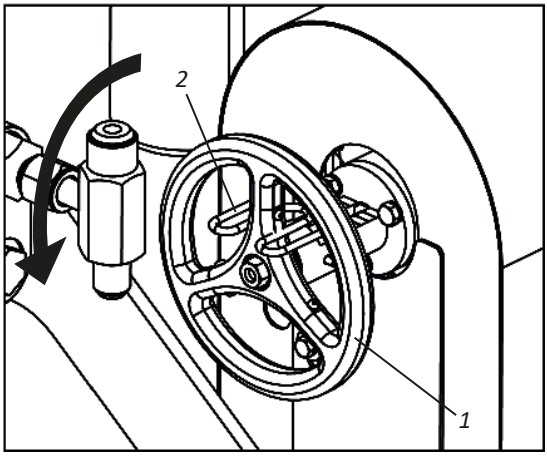
The scale opens

**⚠ ATTENTION** **DO NOT work with an unlocked handwheel (1). Ignoring this warning may cause variations in seed distribution.**

## ▪ Seed distribution system

### • Seed distribution adjustment - Part II

***03 -*** When finishing, lock the handwheel (1) again using the lock (2).




**IMPORTANT**

**Before sowing, make sure the distribution is set as required. This check is necessary because there may be variations in distribution according to the types of seed varieties. We recommend doing a practical check before planting.**

**NOTE**

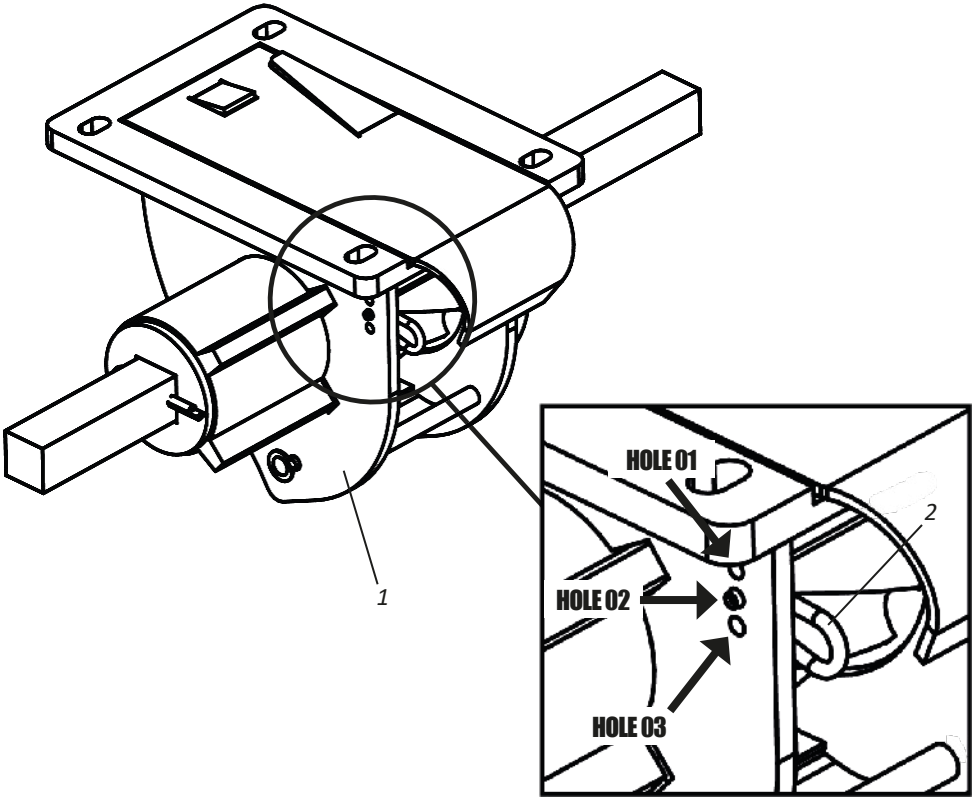
**Seed distribution adjustment is related to rotor opening and valve adjustment. Before working, check the system by turning the handwheel (1) so that the axle (4) move from position 0 (zero) to position 1 (one) and measure whether the rotor has also opened in 1 cm.**

## ▪ Seed distribution box adjustment

### • Seed distribution box adjustment

To avoid seed breakage or uneven sowing, adjust the seed distribution box (1), as follows:

***01 -*** Loosen the pin (2) and adjust it in the holes **1, 2** or **3** according to the size of each seed type to be used.

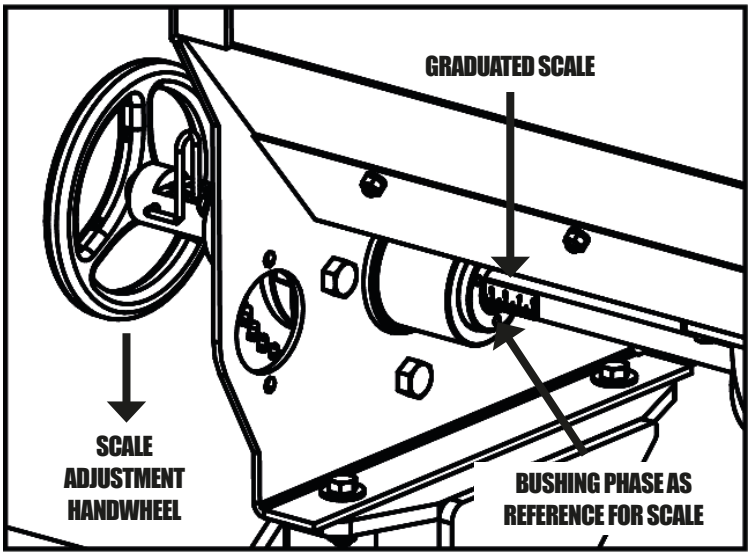



**ATTENTION** | **Before planting, always check the adjustment of the seed distribution box (1).**

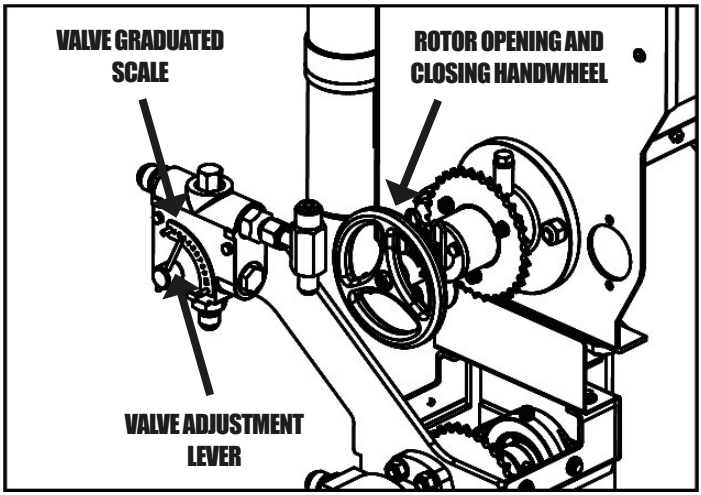
**NOTE** | **Do not press the seed as it may break. The seed must fall freely.**

## ▪ Seed distribution system

### • Seed adjustment with hydraulic motor




**Rotor opening positions:** The rotor opens every 1 mm according to the graduated scale attached to the axle indicated by the arrow. Use the bushing face with reference for scale orientation. At the 0 mark, the rotor is fully closed.




VALVE ADJUSTMENT LEVER AND SCALE DETAILS.

## ▪ Seed distribution system

### • Practical calculation for seed distribution

***01*** - Establish rod spacing and seed amount to be distributed per Alqueire (Aa) or Hectare (Ha).

***02*** - **Example:** GARRA 300 with 300 mm spacing, to spread 5 kgs of green panic grass per Ha, use the formula below:

**Formula Data:**
**E =** Spacing between rods (mm).
**Q =** Amount of seed to be distributed (Kg).
**A =** Area to be planted ($m^2$).
**D =** 50 meters distance (test).
**X =** Seed grams at 50 meters.

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

**Solve:** $X = \frac{300 \times 5 \times 50}{10.000}$

$X = 0{,}15 \times 50 = 7{,}5$

X = 7,5 grams at 50 meters per rod

**NOTE**

**The valve has a high sensitivity in flow adjustment, so in the example above, to distribute green panic grass, the seed distribution table on the following page does not indicate 7.5 grams, but observing the green panic glass line, it is noted that this value 7.5 grams is between 11 and 12 mm of the graduated scale of the axle. For these cases, it is advisable to keep the valve lever in position 2 and slowly turn the handwheel so that the graduated scale is in the median position between 11 and 12 mm, i.e. approximately 11.5 mm. Then do the 50 m test collection to confirm the 7.5 grams calculated in the above formula.**

## ▪ Seed distribution system

### • Seed distribution tables

| | ESTIMATE AMOUNT OF GRAMS PER ROD AT 50 METERS (6 KM/H) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crop Types | Combinations | Scale in 1 mm | Scale in 2 mm | Scale in 3 mm | Scale in 4 mm | Scale in 5 mm | Scale in 6 mm | Scale in 7 mm | Scale in 8 mm | Scale in 9 mm |
| Gramineae | Green panic grass | Valve Position 2 | 0,58 | 1,16 | 1,74 | 2,31 | 2,89 | 3,89 | 4,38 | 4,95 | 5,71 |
| | Common Brachiara | Valve Position 2 | 2,90 | 5,78 | 5,78 | 11,57 | 14,47 | 19,45 | 21,88 | 24,75 | 28,73 |
| | Brachiara Brizantha | Valve Position 2 | 1,74 | 3,47 | 5,21 | 6,94 | 8,68 | 11,67 | 13,13 | 14,85 | 17,12 |
| | Millet | Valve Position 2 | 4,64 | 9,25 | 13,89 | 18,51 | 23,15 | 31,12 | 35,01 | 39,60 | 45,65 |
| | | | | | | | | | | | |
| Leguminosae | Perennial Soybean | Valve Position 2 | 1,43 | 2,85 | 4,29 | 5,71 | 7,14 | 9,60 | 10,80 | 12,22 | 14,08 |
| | Alfafa | Valve Position 2 | 1,64 | 3,26 | 4,90 | 6,52 | 8,16 | 10,97 | 12,34 | 13,96 | 16,09 |
| | Bird's-foot Trefoil | Valve Position 2 | 1,84 | 3,67 | 5,51 | 7,34 | 9,18 | 12,34 | 13,89 | 15,71 | 18,11 |
| | Desmodium | Valve Position 2 | 1,55 | 3,10 | 4,65 | 6,20 | 7,75 | 10,42 | 11,73 | 13,26 | 15,29 |
| | Clover | Valve Position 2 | 1,47 | 2,94 | 4,41 | 5,87 | 7,34 | 9,87 | 11,11 | 12,57 | 14,49 |

| | ESTIMATE AMOUNT OF GRAMS PER ROD AT 50 METERS (6 KM/H) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crop Types | Combinations | Scale in 10 mm | Scale in 11 mm | Scale in 12 mm | Scale in 13 mm | Scale in 14 mm | Scale in 15 mm | Scale in 16 mm | Scale in 17 mm | Scale in 18 mm |
| Gramineae | Green panic grass | Valve Position 2 | 6,48 | 7,13 | 7,77 | 8,42 | 9,1 | 9,72 | 10,36 | 11,01 | 11,66 |
| | Common Brachiara | Valve Position 2 | 32,38 | 35,62 | 38,86 | 42,10 | 45,33 | 48,57 | 51,81 | 55,05 | 58,29 |
| | Brachiara Brizantha | Valve Position 2 | 19,43 | 21,37 | 23,32 | 25,26 | 27,20 | 29,15 | 31,09 | 33,03 | 34,97 |
| | Millet | Valve Position 2 | 51,81 | 56,99 | 62,17 | 67,36 | 72,54 | 77,72 | 82,90 | 88,08 | 93,26 |
| | | | | | | | | | | | |
| Leguminosae | Perennial Soybean | Valve Position 2 | 15,98 | 17,58 | 19,18 | 20,78 | 22,38 | 23,97 | 25,57 | 27,17 | 28,77 |
| | Alfafa | Valve Position 2 | 18,27 | 20,09 | 21,92 | 23,75 | 25,57 | 27,40 | 29,23 | 31,05 | 32,88 |
| | Bird's-foot Trefoil | Valve Position 2 | 20,55 | 22,61 | 24,66 | 26,72 | 28,77 | 30,83 | 32,88 | 34,94 | 36,99 |
| | Desmodium | Valve Position 2 | 17,35 | 19,09 | 20,82 | 22,56 | 24,29 | 26,03 | 27,77 | 29,50 | 31,24 |
| | Clover | Valve Position 2 | 16,44 | 18,08 | 19,73 | 21,37 | 23,02 | 24,66 | 26,31 | 27,95 | 29,59 |

## ▪ Seed distribution system

### • Practical test to measure the amount of seed distribution

For great precision in seed distribution, test the amount to be distributed at the planting site, as there is a condition for each land.

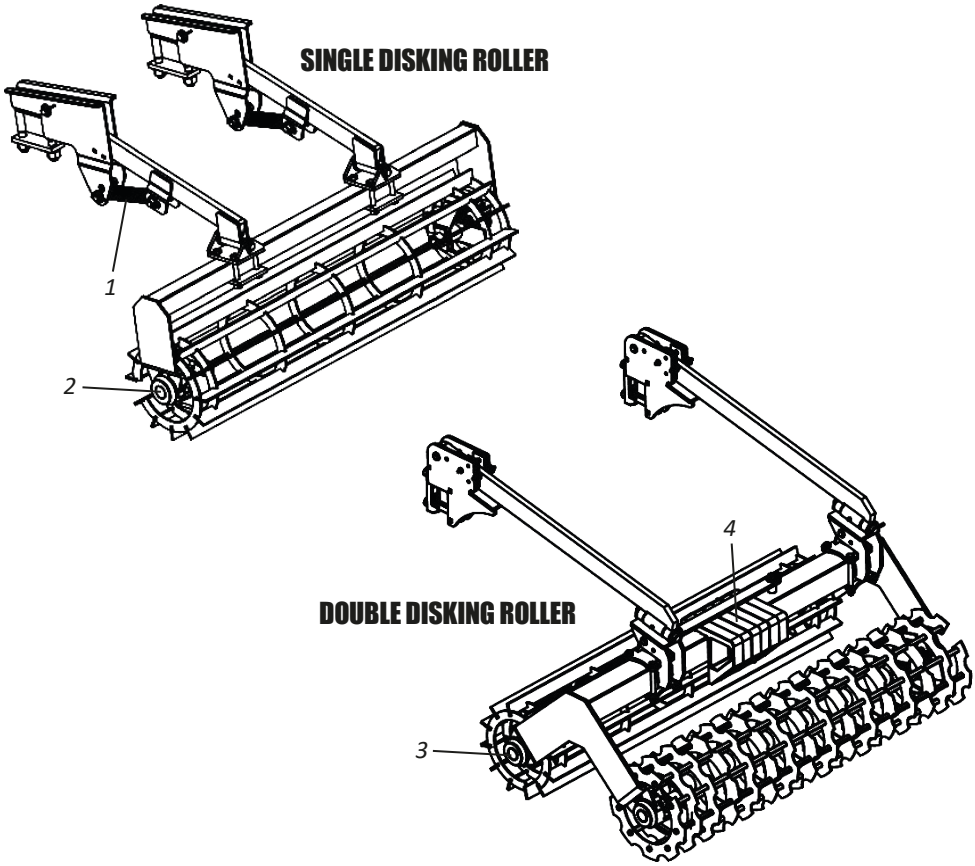
***01*** - Check and maintain tire calibration of **GARRA 300**.
***02*** - Mark the test distance in the table, we opted for 50 linear meters.
***03*** - Fill the tank of **GARRA 300** at least halfway. Walk an average of 10 meters outside the test area so the seeds fill the dosers.
***04*** - Seal the seed nozzle outlets. Move the tractor in the demarcated area always at planting speed (5 to 7 km/h).
***05*** - After going through the demarcated space, remove the seal from the seed nozzles and collect them for counting. If you need to increase or decrease the amount of seed to be distributed, check the table.

**IMPORTANT** | **We suggest that a practical test be conducted on seed distribution over 50 mts to compare results later.**

## ▪ Operations

### • Disking roller

**GARRA 300** can be purchased with SIMPLE or DOUBLE disking rollers. The disking roller has the function of reducing clods and making the work of other equipment easier, pre-leveling the soil. The SINGLE disking roller comprises oil bath bearings (1) and helical springs (2). The DOUBLE disking roller (1) comprises oil bath bearings (3) and counterweights (4).




**⚠ ATTENTION** **When operating or seven stopped, do not allow people to stand on GARRA 300, especially on the disking roller (1). Ignoring this warning may cause severe accidents and even death.**

## ▪ Operations

### • General recommendations

***01*** - Adjust the tractor according to the contents of the instruction manual, always using front and rear weights to stabilize the equipment.

***02*** - Always couple to the tractor in idle mode and very carefully.

***03*** - When using **GARRA 300** it is important check the coupling and cross leveling system to be sure that rods have the same penetration depth into the ground.

***04*** - After hitching and leveling, the next adjustments will be carried out directly in the work field, analyzing terrain for texture, humidity, and types of operations to be carried out with **GARRA 300**.

***05*** - While driving the tractor, choose a gear that allows you to keep power reserves, to be safe against unforeseen efforts.

***06*** - Observe the working and transport speeds specified on page 11. Do not exceed speeds in order to maintain service efficiency and avoid damage to **GARRA 300**.

***07*** - Do not uncouple any hose without first relieving circuit pressure by turning the control levers a few times with the engine off.

***08*** - After the first day of work with **GARRA 300,** retighten all screws, nuts, and check pins and locks. The perform a general retightening on all screws and nuts every 10 hours of work.

***09*** - Adjust the tractor according to the contents of the instruction manual, always using front and rear weights to stabilize the scarifier.

***10*** - When using **GARRA 300** it is important to check the cross leveling system to be sure that the rods will have the will have the same ouil penetration depth into the ground.

***11*** - After hitching and leveling, the next adjustments will be directly in the work field, analyzing the terrain for texture, humidity, and types of operations to be carried out with **GARRA 300**.

***12*** - When performing maintenance on **GARRA 300**, lower it to the ground and switch the engine off.

***13*** - **GARRA 300** has several adjustments, but only local conditions can determine the best adjustment.

**In case of doubts, never operate or handle GARRA 300, contact Post-Sales.**
**Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br**

## ▪ Operations

### • Scarification

The main function of **GARRA 300** is to break compacted layers of soil to a depth of 25 cm. In no-tillge areas, using **GARRA 300** keeps the straw on the ground. This handling makes water infiltration into the soil easier, as it breaks through the thickened layers caused by other machines.

The factors mentioned above guarantee an effective natural protection of the soil against erosion, a better use of crop, fertilizers, and applied herbicides residue. A physically, chemically, adn biologically well-constituted soil, is essential for seed germination and plant growth.

### • Rod operations

***01*** - The soil must be "friable", that is, neither too humid nor too dry.

***02*** - This layer is just below the surface layer of the soil, that is, approximately 10 to 15 cm depp, and this layer varies from 5 to 15 cm thick.

***03*** - Check the depth of the compacted soil layer using a penetrometer or trench and adjust the working depth of the rods.

***04*** - Rods are equipped with an exclusive automatic tripping system that, when they obstacles, they trip, and are can be reset to their normal working position by raising the scarifier and going on reverse (page 53).

***05*** - When opertating the scarifier, choose a gear that allows you to maintain some power reserve, guaranteeing against unforeseen efforts.

***06*** - When maneuvering, activate the hydraulic cylinder by completely lifting the scarifier to avoid straining it or overloading driving components.

***07*** - In hard to penetrate or compact areas, the cutting depth of the rods may be minimal, rendering the operation unsatisfactory. In these cases, we recommend applying other more appropriate Baldan products.

***08*** - Work speed varies according to the terrain's conditions.

**In case of doubts, never operate or handle GARRA 300, contact Post-Sales.**
**Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br**

## ▪ Maintenance

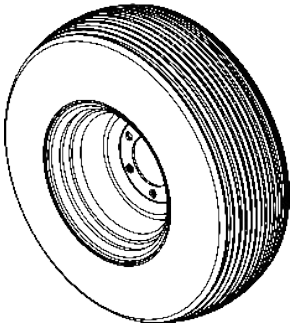
**GARRA 300** has been developed to provide you with the maximum yield on land conditions. Experience has shown that periodic maintenance of certain parts of scarifier is the best way to help you avoid problems, so we suggest verification.

**⚠ ATTENTION**

**Check nuts and bolts, retighten them if necessary. A general retightening maintenance must be performed in the equipment every 10 hours of work.**

### • Tire pressure

The tires should always be properly calibrated avoiding early wear due to excess or lack of pressure.



**GARRA 7 / 9 / 11 / 13 shank**

**STANDARD TIRES:** 11L-15 X 12 CANVAS
**USE:** 52 LBS/POL²

**GARRA 11 and 13 shank**

**OPTIONAL TIRES:** 10.5/80-18 X 10 CANVAS SUPER FLOTATION
**USE:** 54 LBS/POL²

**GARRA 15 and 17 shank**

**STANDARD TIRES:** 10.5/80-18 X 10 CANVAS SUPER FLOTATION
**USE:** 54 LBS/POL²

**❗ IMPORTANT**

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

**⚠ ATTENTION**

**Never weld the wheel mounted with tire, the heat may cause air pressure increase and provoke the explosion of the tire.**
**When filling the tire, position yourself besides the tire, never in front of it.**
**To fill the tire, always use containment device (armor cage).**
**Assemble the tires with proper equipment. The service should only be performed by people qualifield for the work.**

**🔍 NOTE**

**When purchasing the scarifier without tires, we recommend consulting the manufacturer about the ideal calibration for the tire model that will be used in the scarifier.**
**The pressure of the tractor tire should be performad according to the manufacturer's recommendation.**

## ▪ Maintenance

### • Lubrification

Lubrification is imperative for good performance and greater durability of **GARRA 300**, moving parts, helping in maintenance costs savings.

Before beginnings operations, carefully lubrificate all grease fittings, always observing the lubrification intervals in the following pages. Make sure of the lubricant quality regarding its eficiency and purity, avoiding products contaminated by water, dust and other agents.

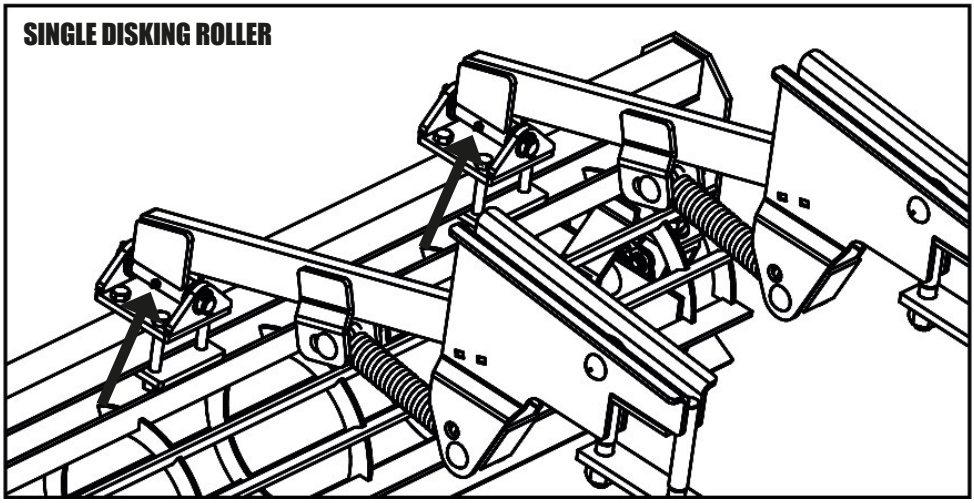
### • Table of greases and equivalents

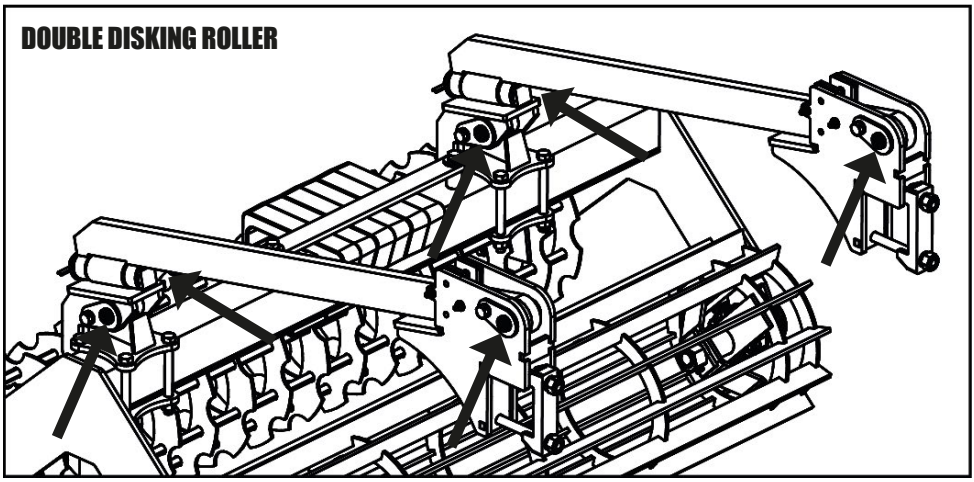
| Manufacturer | Types of grease recommended |
|---|---|
| Petrobrás | Lubrax GMA-2 |
| Atlantic | Litholine MP 2 |
| Ipiranga | Ipiflex 2 |
| Castrol | LM 2 |
| Mobil | Grease MP |
| Texaco | Marfak 2 |
| Shell | Alvania EP 2 |
| Esso | Multi H |
| Bardahl | Maxlub APG-2EP |
| Valvoline | Palladium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

**⚠ ATTENTION** **For equivalent manufacturers and/or brands that are not listed in the table, consult the manufacturer's technical manual.**

## ▪ Maintenance

- Lubrification every 10 hours of work

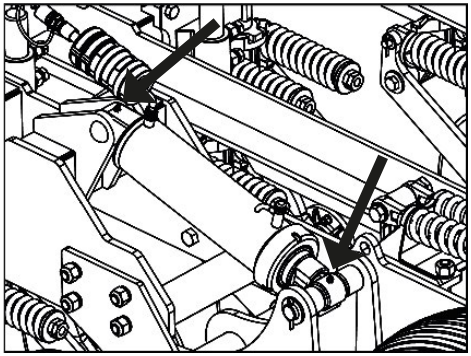


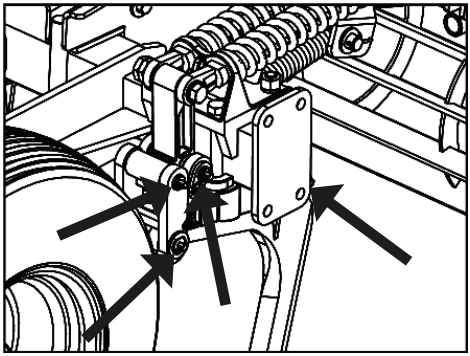



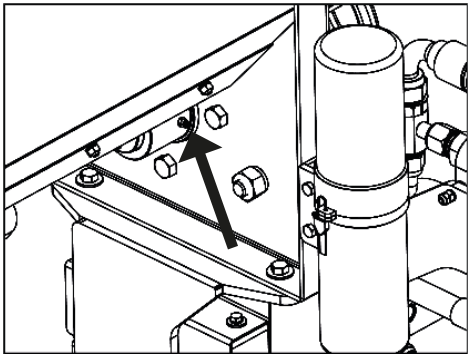

**⚠ ATTENTION** When lubrificating GARRA 300, do not exceed the amount of new grease. Put an adequate amount.

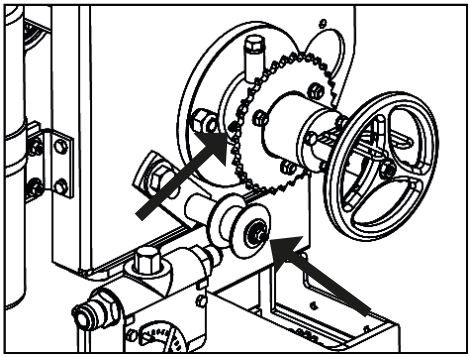
## ▪ Maintenance

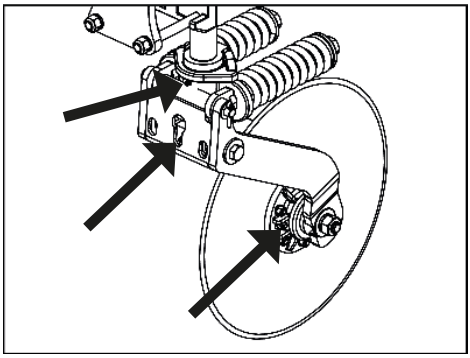
- Lubrification every 10 hours of work







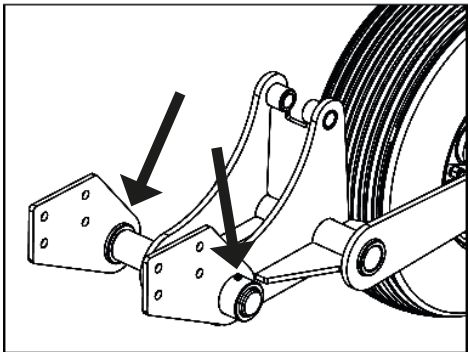




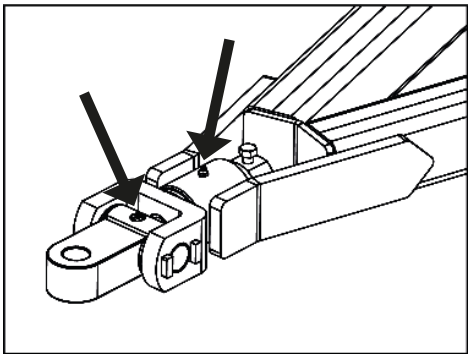
**⚠ ATTENTION** | When lubrificating GARRA 300, do not exceed the amount of new grease. Put an adequate amount.

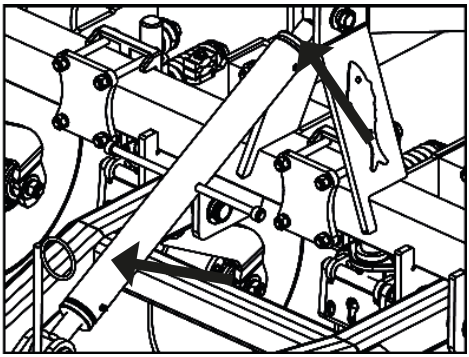
## ▪ Maintenance

• Lubrification every 24 hours of work

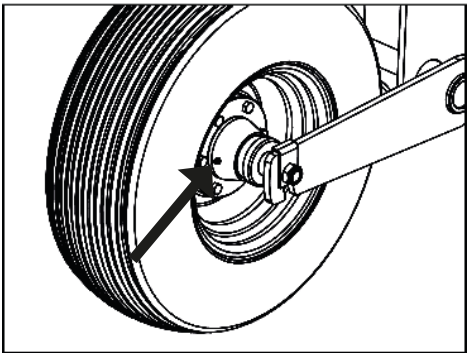


• Lubrification every 30 hours of work





• Lubrification every 60 hours of work



**⚠ ATTENTION**

When lubrificating GARRA 300, do not exceed the amount of new grease. Put an adequate amount.

## ▪ Maintenance

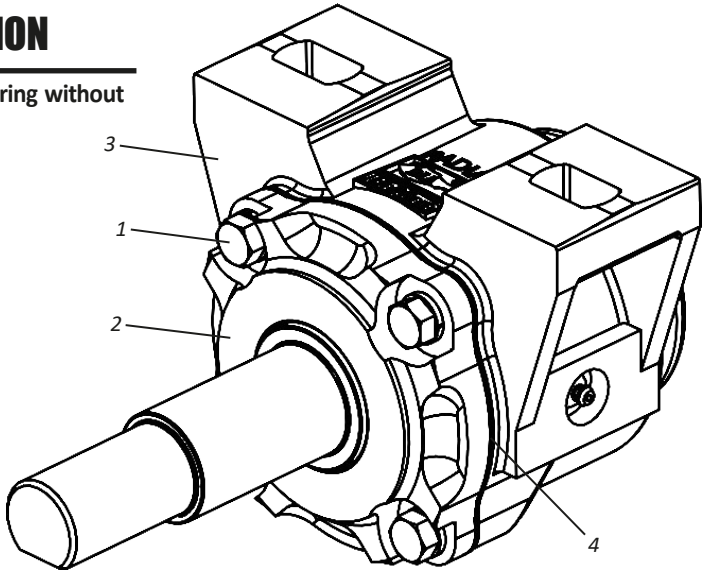
### • Bearings adjustments

When the bearings have gaps, proceed as follows to adjust them:

***01*** - Then, loosen screws (1) and remove the cover (2) of the bearing (2).
***02*** - Then, remove one or two gaskets (4) from the bearing cover (3). Put the bearing cover back (3) and retighten it.
***03*** - If the gap remains, the bearing cover (3) can be squared for increased adjustment, then assemble it on the bearing with as many gaskets as necessary.
***04*** - The bearing should spin freely, with no gaps.

**⚠ ATTENTION**

**Do not assemble the bearing without the gaskets (4).**




### • Grease bearing

Grease bearings must be lubricated every 12 working hours, using the grease specified below.

**OBSERVATION** | **Before lubricating bearings, wipe grease with a clean, lint-free cloth. Replace damaged grease fittings.**

**⚠ ATTENTION**

**The amount of grease in each bearing is 200 grams.**
**Only use the following grease: EP (Specification DIN51825 KP00K Consistency NLGI 2/3).**

## ▪ Maintenance

### • Operational maintenance - Part I

| PROBLEMS | PROBABLE CAUSES | SOLUTIONS |
|---|---|---|
| The scarifier is not penetrating the ground (partially or totally). | The working position if off the horizontal line. | Adjust horizontality using the 3rd point adjuster. |
| | Spouts: 1 Tip or 2 Tips. | 1 Tip: Reverse position. 2 Tips: Replace. |
| The scarifier does not move in any direction or moves with difficulty. | Tractor with poor hydraulic system. | Repair the system or change the scarifier to another tractor. |
| | Very low oil level. | Complete the hydraulic oil level. |
| | Inverted hose. | Check the hoses and assemble them correctly. |
| | Hydraulic cylinders with damaged repairs. | Replace repairs or replace cylinders. |
| | Insufficient command hydraulic pressure. | Adjust the control via the relief valve with the help of a pressure gauge. |
| | Unequal plugs pressure. | Adjust or replace if necessary. |
| | Clogged or crushed hydraulic driver. | Unclog or replace piping. |
| The scarifier moves without operting the control. | Damaged repairs. | Replace hubs. |
| | Hydraulic cylinders with damaged repairs. | Identify which cylinder and replace repairs. |
| | Insufficient tightening. | Retighten carefully. |
| | Lack of sealing material on the thread. | Use sealing tape and retighten carefully. |
| Chassis with cracks or warps. | Curves or trims of very short radius with the scarifier attached to the soil. | When performing these maneuvers remove the rods from the ground by activating the remote control. |
| | Automatic assembly does not disassemble. | Adjust spring pressure according to page 48. |
| | Excessive tightening of springs. | Adjust spring pressure according to page 48. |
| | Screws of lower quality than required. | Replace for Baldan original parts. |

## ▪ Maintenance

### • Operational maintenance - Part II

| PROBLEMS | PROBABLE CAUSES | SOLUTIONS |
|---|---|---|
| **Automatic assembly does not trip.** | Rod roller stuck. | Lubricate with or replace it. |
| | Excessive spring grip. | Adjust spring pressure according to page 48. |
| **Automatic assembly with frequent tripping.** | Areas with a high incidence of obstacles such as rocks, stumps, root, etc. | Reduce speed and/or avoid these areas. |
| | High compression ratio ground. | Reduce work speed |
| | Tractor power and work speed higher than recommended. | Work within the limits of power and speed recommended by the manufacturer. |
| | Insufficient spring pressure. | Adjust spring pressure according to page 48. |
| | Lever with scrap wear on the roller socket. | Replace lever. |
| Hydraulic cylinder leakage. | Impure oil. | Replace oil, repairs and filter element. |
| | Working pressure higher than recommended. | Adjust the control via the relief valve with the help of a pressure gauge. |
| | Damaged repairs. | Replace hubs. |
| | Damaged shaft. | Replace shaft. |
| Leakage in hydraulic hose. | Lack of sealing material on the thread. | Use sealing tape and retighten carefully. |
| | Insufficient tightening. | Retighten carefully. |
| Quick hitches do not fit. | Couplings of different types. | Replace them for males and females of the same type. |

## ▪ Maintenance

### • Cares

***01*** - Before each work, check the condition of all hoses, pins, screws, bearings, and disc. Where necessary, retighten them.
***02*** - Travel speed should be carefully controlled according to the terrain's conditions.
***03*** - **GARRA 300** is used in several applications and requires knowledge and attention when handling it.
***04*** - Only local conditions can determine the best operation method of **GARRA 300**.
***05*** - When assembling or disassembling any part of **GARRA 300**, use proper methods and tools.
***06*** - Carefully observe the lubrification intervals in the various lubrification points of **GARRA 300**. Respect lubrification intervals.
***07*** - Always check if the parts have wears. If there is a need for replacement, always demand Baldan original parts.
***08*** - Keep **GARRA 300** tires calibrated.
***09*** - Keep **GARRA 300** dics always sharp.

**IMPORTANT** | **Proper and periodic maintenance is necessary to ensure the long life of GARRA 300.**

### • General cleaning - Part I

***01*** - To store **GARRA 300**, clean and wash it thoroughly with only water. Make sure the paint has not worn out, if this has happened, give a general coat, apply the protective oil and fully lubrificate **GARRA 300**. Do not use burnt oil or other abrasive material.
***02*** - Thoroyghly lubricate **GARRA 300**. Check all moving parts of **GARRA 300**, for wears or gaps, and make the required adjustment or replace parts replacements, leaving the scarifier ready for the next work.
***03*** - After all maintenance precautions, store the scarifier at a covered and dried location, properly supported.

Avoid: - That the discs come into direct contact with the ground.
- The compression of the springs.
- Hydraulic hoses should be properlu capped.

## ▪ Maintenance

### • General cleaning - Part II

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

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

***06 -*** After all maintenance precautions, store your **GARRA 300** on a flat surface, in a covered, and dried location, away from animals and children.

***07 -*** We recommend washing **GARRA 300** only with water on the beginning of works.

**⚠ ATTENTION** | **Do not use abrasive or chemical products to wash GARRA 300, as it may damage its paint and stickers.**

### • Scarifier conservation - Part I

To extend the service life and appearance of **GARRA 300,** follow the instructions below:

***01 -*** Wash and clean all **GARRA 300** components during and at the end of the work season.

***02 -*** Use neutral products to clean **GARRA 300** according to safety and handling guidelines provided by the manufacturer.

***03 -*** Always perform maintenance in the periods indicated in this manual.

### • Scarifier conservation - Part II

If adopted by the owner or operator, the practices and precautions below can make a difference in the conservation of **GARRA 300.**

***01 -*** Be careful when performing high-pressure washing; do not direct the water jet to connectors and electrical components. Isolate all electrical components.

***02 -*** Only use NEUTRAL detergent and water (pH equal to 7);

***03 -*** Apply the product, following the manufacturer's instructions strictly, on the wet surface and in the correct sequence, respecting the time of application and washing;

***04 -*** Stains and dirt not removed with the products should be removed with the aid of a sponge.

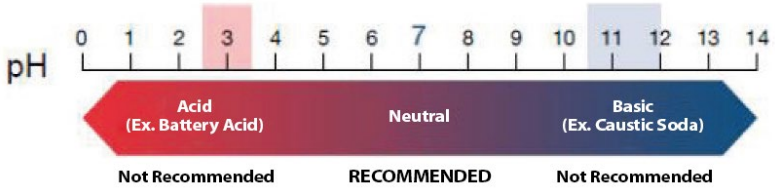
***05 -*** Rinse the machine with clean water to remove all chemical residues.

## ▪ Maintenance

### • Scarifier conservation - Part II

***06 -*** Do not use: - Detergents with a basic active ingredient (pH higher than 7) may damage/ stain the paint of the scarifier.

**- Detergents with acid active ingredient (pH less than 7), act as stripper/remover of zinc coating (the protection of parts against oxidation).**




***07 -*** Let the machine dry in the shade so that it does not accumulate water in its components.

***08 -*** After drying, lubrificate all chains and greases according to the recommendations in the operator's manual.

***09 -*** Spray the whole machine, especially its zinc parts, with protective oil, following the manufaturer's application guidelines. The protective also prevents dirt from adhering to the machine, facilitating subsequent washings

***10 -*** Observe curing (absorption) time and application intervals as recommended by the manufacturer.

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

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

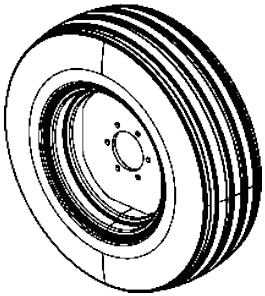
**NOTE** | **Ignoring the conservation measures mentioned above may result in loss or warranty for painted or zinc-coated components which may suffer oxidation (rust).**

## ▪ Optional

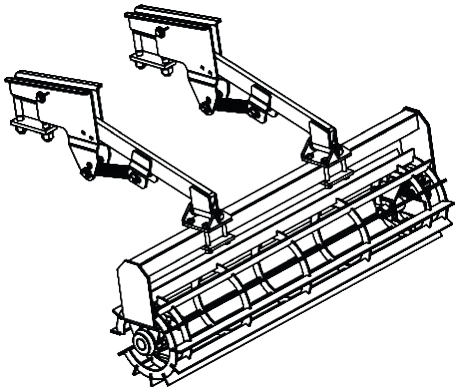
### • Optional Accessories

**GARRA 300** has optional accessories that can be acquired according to work requirements.

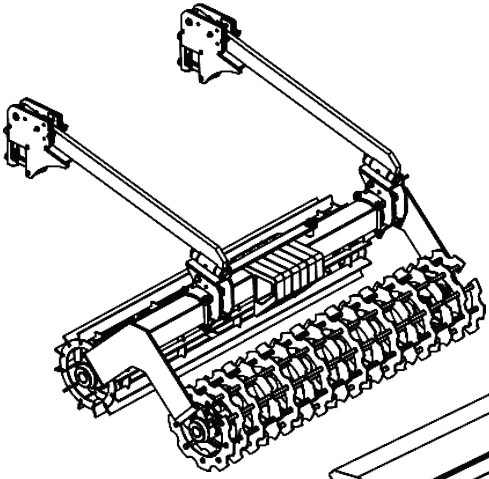
**TIRES 10.5/80-18 X 10 CANVAS SUPER FLOTATION FOR GARRA 11 AND 13 RODS**

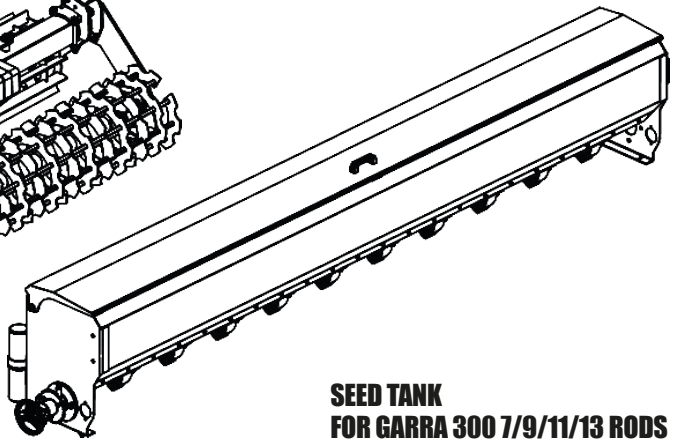


**SINGLE DISKING ROLLER FOR GARRA 300 7/9/11/13/15/17 RODS**



**DOUBLE DISKING ROLLER FOR GARRA 300 7/9/11/13/15/17 RODS**





**SEED TANK FOR GARRA 300 7/9/11/13 RODS**

## ▪ Identification

### • Identification plate

In order to consult the parts catalog or ask Baldan for service, always indicate the model (1), serial number (2) and manufacturing date (3), which is on the nameplate of your **GARRA 300**.


## ⚠ ATTENTION

**The drawings in this Instruction Manual are merely illustrative.**

## CONTACT

**In case of doubts, never operate or handle your equipment without contacting Post-Sales.**
**Telephone: 0800-152577**
**e-mail: posvenda@baldan.com.br**

## PUBLICATIONS

**Code: 60550102075 | CPT: GARRA14422C**

PEÇAS ORIGINAIS BALDAN
ORIGINAL PARTS • PIEZAS ORIGINALES

## ▪ Identification

### • Product identification

Please make the correct identification of the data below, to always have information about the service life of your equipment.

Owner: _____

Dealer: _____

Property: _____

City: _____

State: _____

Certificate of Warranty no.: _____

Implement: _____

Serial No: _____

Purchase Date: _____

Invoice: _____

## ▪ Notes

## ▪ Notes

# Certificate of Warranty

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

In the warranty period, request and replacement of eventual defective parts shall be made to the dealer of the area, who will submit the faulty piece for **BALDAN** analysis. When this procedure is not possible and the resolving capacity of the dealer is exhausted, the dealer will request the support of **BALDAN Technical Assistance** through a specific form distributed to dealers. After analyzing the replaced items by Baldan Technical Assistance, and concluding that it is not a warranty, then the dealer will be responsible for the costs related to the replacement; as well as material expenses, travel including accommodation and meals, accessories, lubricant used and other expenses arising from the call out to Technical Assistance, and Baldan company is authorized to carry the respective invoice in the name of the resale. Any repair carried in the product within the dealer warranty deadline will only be authorized by **BALDAN** upon previous budget presentation describing parts and work to be performed.

The product is excluded from this term if it is repaired or modified by representatives not belonging to the **BALDAN** dealer network, as well as the application of non-genuine parts or components to the user's product. This warranty is void where it is found that the defect or damage is caused by improper use of the product, failure to follow instructions or inexperience of the operator.

It is agreed that this warranty does not cover tires, polyethylene tanks, cardan, hydraulic components, etc., which are equipment guaranteed by their manufacturers. Manufacturing and/or material defects, object of this warranty term, will not constitute, under any circumstances, grounds for termination of a purchase agreement, or for indemnification of any nature.

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

## ▪ Inspection and Delivery Certificate

**SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

**DELIVERY SERVICE:** The user was informed about the current warranty terms and instructed on the usage maintenance precautions.

I confirm that the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

***Signature / Dealer Stamp*** _____

***1st copy - Owner***

## ▪ Inspection and Delivery Certificate

**SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

**DELIVERY SERVICE:** The user was informed about the current warranty terms and instructed on the usage maintenance precautions.

I confirm that the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

***Signature / Dealer Stamp*** _____

***2nd copy - Dealer***

## ▪ Inspection and Delivery Certificate

**SERVICE BEFORE DELIVERY:** This implement was carefully prepared by the sale organization, with all its parts inspected according to the manufacturing prescriptions.

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Implement: _____ Serial Number: _____

Date: _____ Tax Number: _____

Dealer: _____

Telephone: _____ CEP: _____

City: _____ State: _____

Owner: _____

Telephone: _____

Address: _____ Number: _____

City: _____ State: _____

E-mail: _____

Sale date: _____

***Signature / Dealer Stamp*** _____

***3rd copy - Manufacturer (Please send completed within 15 days).***

**1.74.05.0059-5**

**AC MATÃO**
**ECT/DR/SP**

# RESPONSE CARD

**NO STAMPING IS REQUIRED**

## THE STAMP WILL BE PAID BY:


**BALDAN IMPLEMENTOS AGRÍCOLAS S/A.**

Av. Baldan, 1500 | Nova Matão | CEP: 15993-900 | Matão-SP. | Brasil
Tel: (16) 3221-6500 | Fax: (16) 3382-6500
www.baldan.com.br | email: sac@baldan.com.br
Export: Tel: +55 (16) 3221-6500 | Fax: +55 (16) 3382-4212 | 3382-2480
email: export@baldan.com.br

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