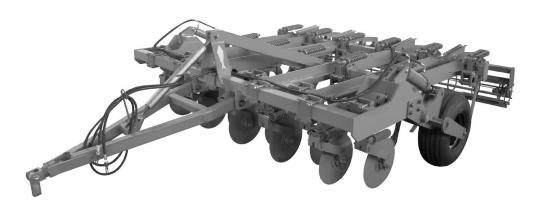


# INSTRUCTION MANUAL



**GARRA 300** 

SCARIFIER PLOW WITH AUTOMATIC SHANK

## Presentation

e 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 has delivered this implement for resale in full and in perfect conditions.

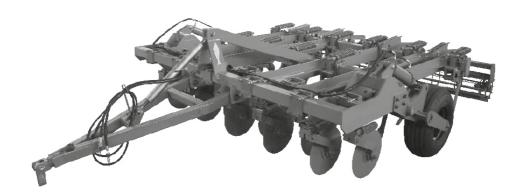
Resale was responsible for the custody and maintenance during the period in its possession, and also for the assembly, retightening, lubrication and overhaul.

During the technical delivery, dealer should guide the user client about maintenance, safety, his/her 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**

Scarifier Plow With Automatic Shank





#### Table Contents

BALDAN WARRANTY	07
GENERALINFORMATION	08
To the owner	08
SAFETYRULES	09
To the operator	9-12
WARNINGS	13-14
COMPONENTS	15
GARRA 300 - Scarifier Plow with Automatic Shank	15
DIMENSIONS	10
GARRA 300-7/9/11/13 Shaft	16
SPECIFICATIONS	17
GARRA 300 - Scarifier Plow with Automatic Shank	17
ASSEMBLY	18
Assembly of coupling head	18
Assembly of wheel axle	19
Tire Assembly	20
Shaft Assembly	2
Shaft Assembly-7 shafts	22
Shaft Assembly-9 shafts	22
Shaft Assembly - 11 shafts	23
Shaft Assembly-13 shafts	23
Disk Assembly	24
DiskAssembly-7shafts	25
DiskAssembly-9shafts	25
DiskAssembly-11shafts	26
Disk Assembly - 13 shafts	26
Harrowing Roller Assembly	27
Assembly of hydraulic system-7 Shafts	28
Assembly of hydraulic system-9 Shafts	29
Assembly of hydraulic system-11 Shafts	30
Assembly of hydraulic system-13 Shafts	3.
COUPLING	32
Scarifier Levelling	32
Scarifier Levelling	33
ADJUSTMENTS	33
Adjustment for transport	33-34
Shaft Assembly	35
Limiting rings combinations	36
Autodisarm	24



Automatic release load setting	37
Depth adjustment and cutting disc pressure	38
OPERATIONS	39
Harrowing Roller	39
General Recommendations	40
Scarification	41
Operations Haste	41
MAINTENANCE	42
Tires pressure	42
Lubrication	43
Lubrication every 10 hours of work4	13-45
Lubrication every 24 hours of work	45
Lubrication every 30 hours of work	46
Lubrication every 60 hours of work	46
Bearings adjustments	47
Bearings oil	47
Operational maintenance	8-49
Precautions	50
General Cleaning	51
Scarifier Conservation - Part I	52
Scarifier Conservation - Part II	52
Scarifier Conservation - Part III	53
IDENTIFICATION	54
Identification plate	54
Product identification	55
NOTES	6-57
CERTIFICATE	58
Certificate of warrant58	8-64



#### 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.



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 to learn 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 transport not 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

DO NOT PERFORM ADJUSTMENTS WHILE GARRA 300 IS RUNNING. WHEN PERFORMING ANY SERVICE ON GARRA 300, SWITCH OFF THE TRACTOR FIRST, USE APPROPRIATE TOOLS.

### ?\ ATTENTION



Do not perform adjustments while GARRA 300 is 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 incision of fluid in the skin.

### **!\ ATTENTION**



When transporting GARRA 300, do not exceed the 25km/h or 15 MPH speed. avoiding risk of damages and accidents.

### **?**∖ Attention





When working with GARRA 300, do not exceed the 12km/h or 7 MPH speed, avoiding risk of damages and accidents.



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 the conservation status of the hoses. If there are any sign of leakage, replace them immediately. Before connecting or diskonnecting the hydraulic hoses, relief the system pressure by activating the control 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 beginning the work or transportation of GARRA 300, check if there are people or blockages close to it.

#### **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**



Maintain the articulation area free while GARRA 300 is running. In closed curves, avoid the 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 fill the tire, always use containment device (filling 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 Equipment

DO NOT WORK WITH GARRA 300 WITHOUT FIRST PUTTING PPES (SAFETY EQUIPMENT) ON. IGNORING THIS WARNING MAY CAUSE DAMAGES TO HEALTH, SEVERE ACCIDENTS OR DEATH.

When performing certain procedures with GARRA 300, put the following PPEs (Safety Equipment) on:





## IMPORTANT

Safe practice should be performed in all work steps with GARRA 300, thus avoiding accidents such as objects impact, fall, noises, cuts and ergonomics, that is, the person responsible for operating GARRA 300 is subject to internal and external damages to their body.

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









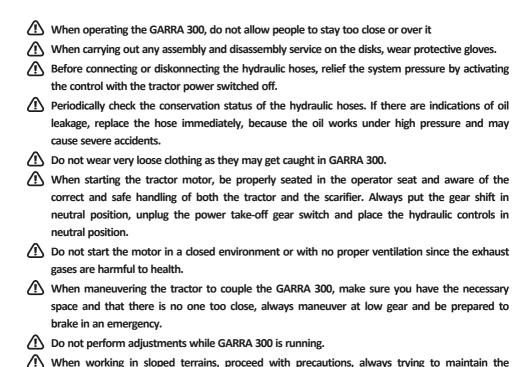








#### Warnings



required stability. In case it starts to unbalance, reduce acceleration and turn the wheels of the tractor to the downward face of the terrain and never lift the scarifier.

tractor to the downward face of the terrain and never lift the scar

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

When driving the tractor in highways, keep the break pedals interconnected.

Do not work with the tractor with light rear. Should there be a trend to lift, add weights or ballasts to the front or the 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 the GARRA 300 shall be performed with the equipment stopped and with the tractor switched off.

Periodically check all GARRA 300 components before using it.



#### Warnings

- ① Due to the equipment used and work conditions on field or in maintenance areas, precautions are required. Baldan does not have direct control over precautions, therefore, it is the owner's responsibility to put into practice the safety procedures while working with GARRA 300.
- Check the minimum power of the tractor recommended for each model of GARRA 300. Only use tractor with power and ballast compatible.
- ① During GARRA 300 transportation, drive in speeds compatible to the terrain and never exceeding 16 Km/h, since it reduces maintenance and, therefore, increases GARRA 300 service life.
- 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 the influence any of these substances.
- Read or explain all the procedures above to the user who cannot read.

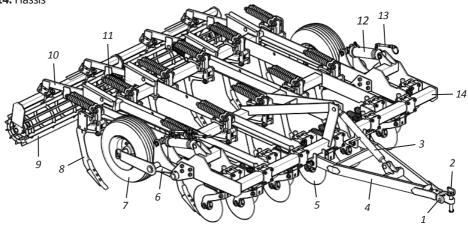


### Components

#### **GARRA 300 - Scarifier Plow with Automatic Shank**

- 1. Hook Shackle
- 2. Pin w/ ring
- 3. Head regulator
- 4. Coupling head
- 5. Complete Cutting disk
- 6. Right articulation support
- 7. Complete wheel
- 8. Auto disarm shaft
- 9. Harrowing Roller
- 10. Scraper harrowing roller swing bar
- 11. Shaft spring
- 12. Hydraulic Cylinder
- 13. Hydraulic Hose

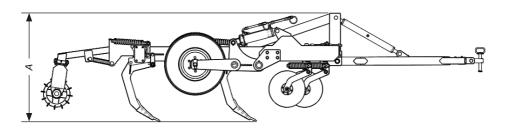
14. Hassis

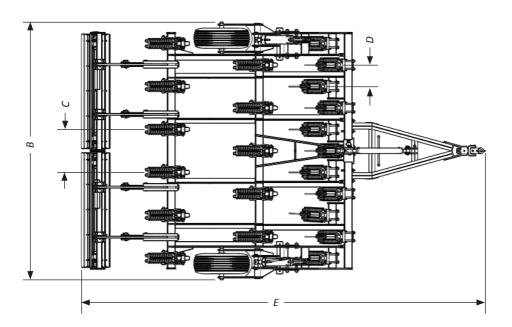




### Dimensions

• GARRA 300 - 7 / 9 / 11 / 13 Shaft





Model	No. of Shafts	Measureme nt A (mm)	Measurement B (mm)	Measurement C (mm)	Measurement D (mm)	Measurement E (mm)
GARRA 300	7	1364	2406	600	300	5628
	9	1364	3008	600	300	5628
	11	1364	3605	600	300	5628
	13	1364	4221	600	300	5628



#### Specifications

#### • GARRA 300 - Scarifier Plow with Automatic Shank

Model	Shank	Nr discs	Levelling Roller	Working Width	Total Width	Weight	Tractor Power
	7	7	1 x 2150	2100	2406	1976	90 to 105
GARRA 300	9	9	2 x 1300	2700	3008	2371	110 to 135
	11	11	2 x 1600	3300	3605	2883	120 to 165
	13	13	2 x 1900	3900	4221	3107	165 to 215

Useful width (mm)	5628
Total Height (mm)	
Disc Diameter	18"
Minimum spacing between shanks (mm)	300
Nr. of Wheels	2
Ground Wheels	11L-15 x 12
Recommended working maximum speed	12km/h
Recommended transport maximum speed	25km/h

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**

- The **GARRA 300** was developed to promote the decompression of the soil caused by soil rotation through plowing and harrowing, or in the case of no-tillage by the constant traffic of heavy machinery.
- GARRA 300 should only be driven and started by a properly instructed operator.

#### **NON-ALLOWED USE OF GARRA 300**

- To avoid damages, severe accidents or death, do NOT transport people on other 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.



GARRA 300 leaves the factory disassembled. To assembly it, follow the instructions below:

The assembly of GARRA 300 shall be done by the dealer, by trained, skilled and qualified personnel for this work.

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

Do not use loose clothing because they may get entangled in the GARRA 300.

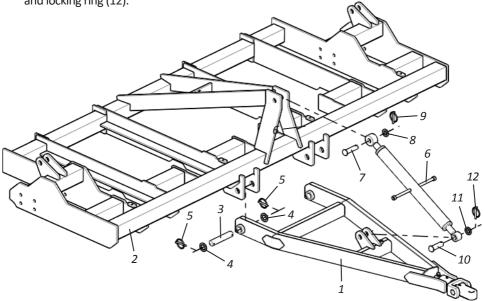
To mount the GARRA 300, place the chassis on 2 (two) trestles at least 850 mm high.

#### Assembly of the coupling head

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

- 01 Attach the coupling head (1) to the frame (2) by fastening with pins (3), plain washers (4) and locking ring (5).
- 02 Then insert the adjuster (6) into the frame (2) by attaching the pins (7), plain washers (8) and locking ring (9).

03 - Then, insert the regulator (6) in the header (1), fixing with the pins (10), plain washers (11) and locking ring (12).

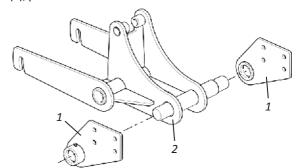




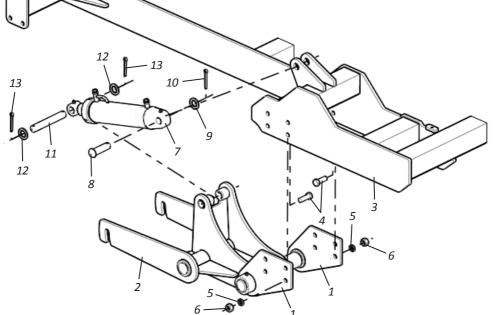
Assembly of wheel axle

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

- **01** Secure the plates (1) to the wheel holder (2).
- **02** Then secure the plates (1) to the chassis (3) through the screws (4), lock washers (5) and nuts (6).
- **03** Attach the hydraulic cylinders base (7) to the strut (3), securing them with pin (8), flat washer (9) and cotter pin (10).



**4** - End attaching the hydraulic cylinder shaft (7) to the right side support of the wheel axle (2) with pin (11), flat washer (12) and cotter pin (13).

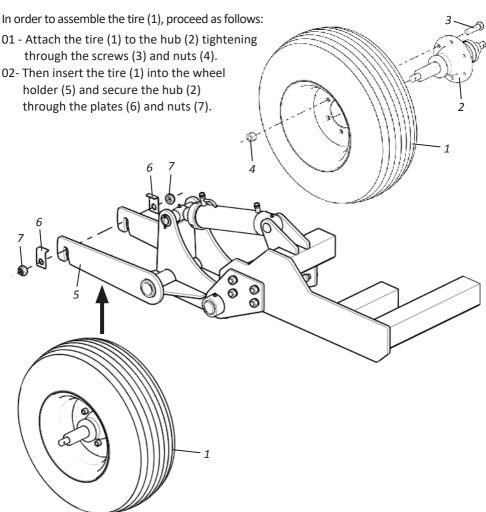




Repeat the procedure above to assemble the other shaft.



Tire Assembly



**OBSERVATION** Repeat the procedure above to assemble the other tire.



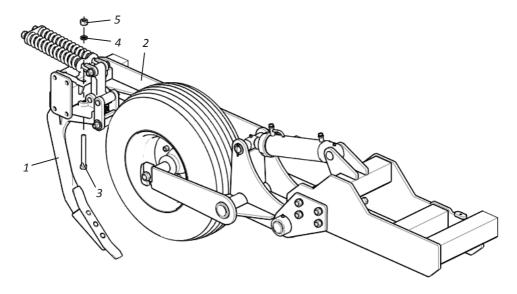
**ATTENTION** Check the correct tire calibration on page 42.



Shaft Assembly

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

01 - Attach the BEARING (1) to the support (2) attaching it with screws (3), flat washers (3), pressure washers (4) and nuts (5).



**OBSERVATION** Repeat the procedure above to assemble the other shafts.



**ATTENTION** Check the following pages for the correct mounting of the shafts for each model of the GARRA 300.



• Shaft Assembly - 7 shafts

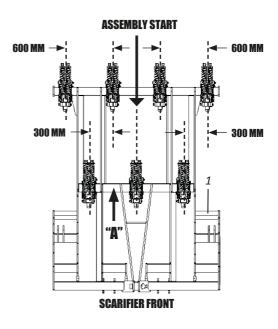
### **ATTENTION**

The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.

### **OBSERVATION**

The front section of the scarifier should contain a smaller number of shafts than the rear section.

• Shaft Assembly - 9 shafts

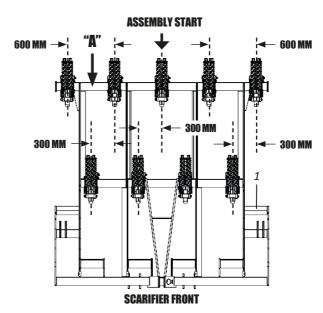


### **ATTENTION**

The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.

### **OBSERVATION**

The front section of the scarifier should contain a smaller number of shafts than the rear section.





• Shaft Assembly - 11 shafts

## **ATTENTION**

The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.

### **OBSERVATION**

The front section of the scarifier should contain a smaller number of shafts than the rear section.

ASSEMBLY START

600 MM

300 MM

300 MM

300 MM

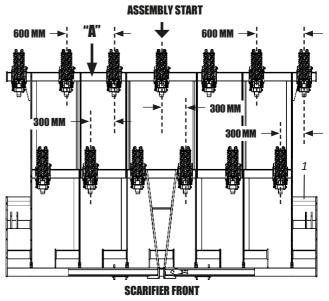
Shaft Assembly - 13 shafts

## **ATTENTION**

The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.

### **OBSERVATION**

The front section of the scarifier should contain a smaller number of shafts than the rear section.

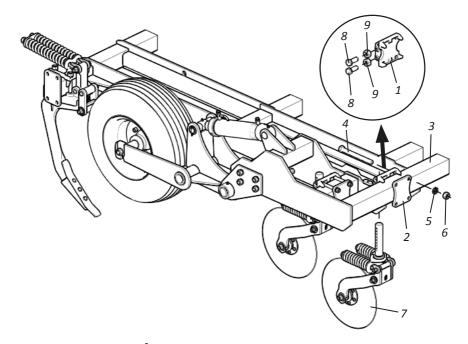




Disk Assembly

To assemble the cutting disk, proceed as follows:

- 01 Secure the support bracket (1) and the plate (2) to the frame (3), using the screws (4), washers pressure washers (5), and nuts (6).
- 02 Next, attach the cutting disc (7) to the support bracket (1), fixing it through the screws (8), and against nuts (9).



**OBSERVATION** Repeat the procedure above to assemble the other disks.



Check the following pages for the correct mounting of the disks for each model of the GARRA 300.



• Disk Assembly - 7 shafts

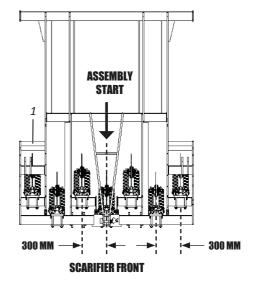
### **O** IMPORTANT

The cutting discs must be mounted in the same alignment of the shafts.

### **ATTENTION**

The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.

Disk Assembly - 9 shafts

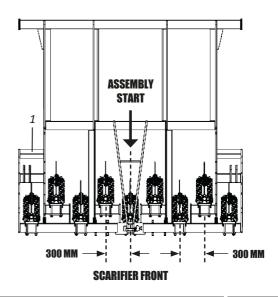


### **O** IMPORTANT

The cutting discs must be mounted in the same alignment of the shafts.



The number of shafts mounted is odd, so start the shaft assembly "A" from the frame (1) by going to the other shafts.





• Disk Assembly - 11 shafts

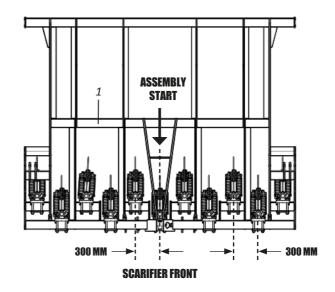
### **O** IMPORTANT

The cutting discs must be mounted in the same alignment of the shafts.

### **ATTENTION**

Start the assembly of the cutting discs by the center of the frame (1) going to the others.

Disk Assembly - 13 shafts

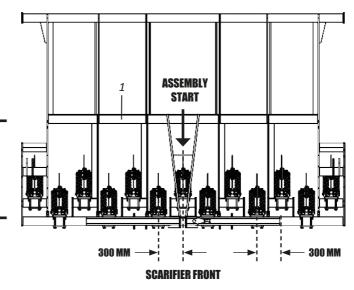


## **O** IMPORTANT

The cutting discs must be mounted in the same alignment of the shafts.

### **ATTENTION**

Start the assembly of the cutting discs by the center of the frame (1) going to the others.



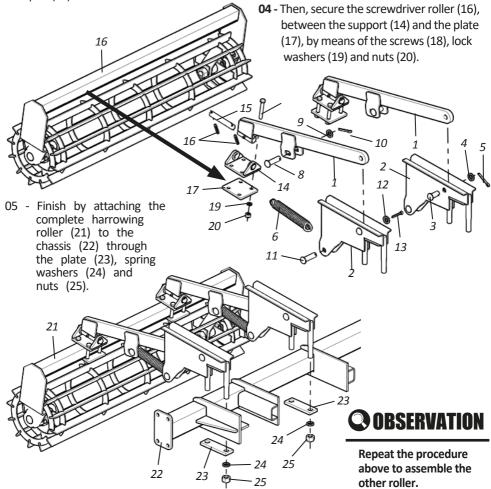


• Harrowing Roller Assembly

In order to assemble the harrowing roller, proceed as follows:

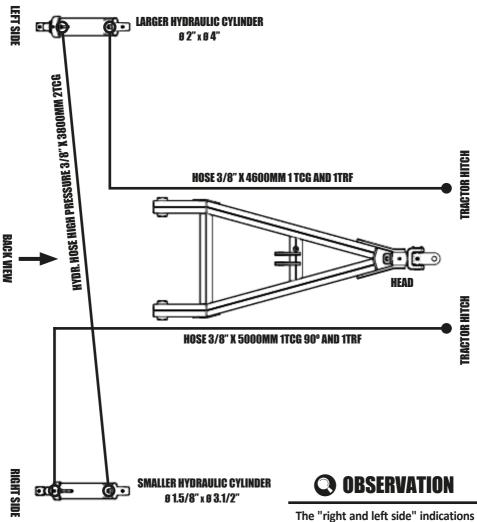
- **01** Insert the sway bar (1) between the bracket (2) and lock with the pin (3), plain washers (4) and cotter pin (5).
- **02** Then, connect the spring (6) between the oscillation bar (1) and the support (2), fixing through the pins (8), flat washer (9), cotter pin (10) and pin (11), flat washer (12) and cotter pin (13).

**03** - Then, attach the support (14) to the swing bar (1), fixing it through the pin (15) and the elastic pins (16).





Assembly of hydraulic system - 7 Shafts



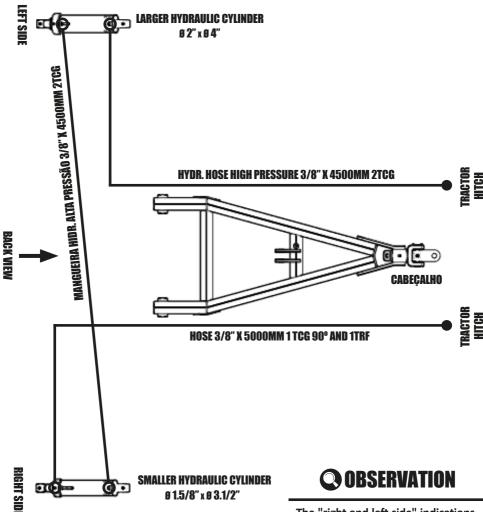
The "right and left side" indications are made by looking at the scarifier behind.



When completing the hydraulic system assembly, make a general GARRA 300. Retighten all bolts and nuts, check all pins, cotter pins and latches, check all hoses.



• Assembly of hydraulic system - 9 Shafts



The "right and left side" indications are made by looking at the scarifier behind.

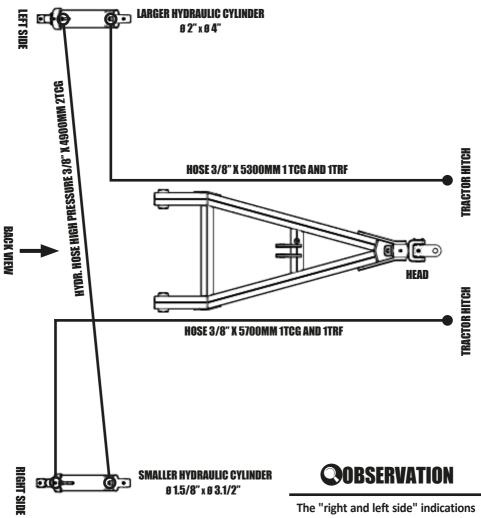


When completing the hydraulic system assembly, make a general GARRA 300. Retighten all bolts and nuts, check all pins, cotter pins and latches, check all hoses.



#### Assembly

• Assembly of hydraulic system - 11 Shafts



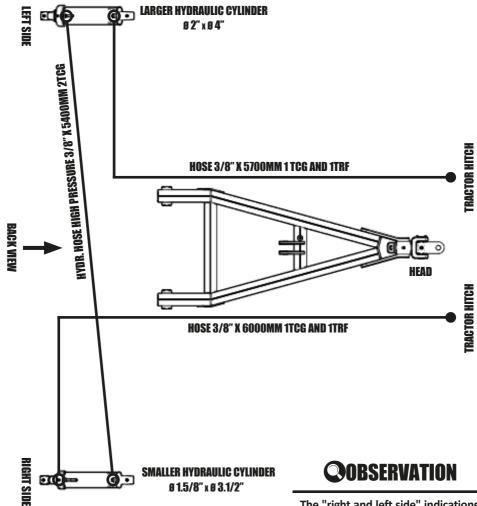
The "right and left side" indications are made by looking at the scarifier behind.



When completing the hydraulic system assembly, make a general GARRA 300. Retighten all bolts and nuts, check all pins, cotter pins and latches, check all hoses.



• Assembly of hydraulic system - 13 Shafts



The "right and left side" indications are made by looking at the scarifier behind.



When completing the hydraulic system assembly, make a general GARRA 300. Retighten all bolts and nuts, check all pins, cotter pins and latches, check all hoses.



#### Hitch

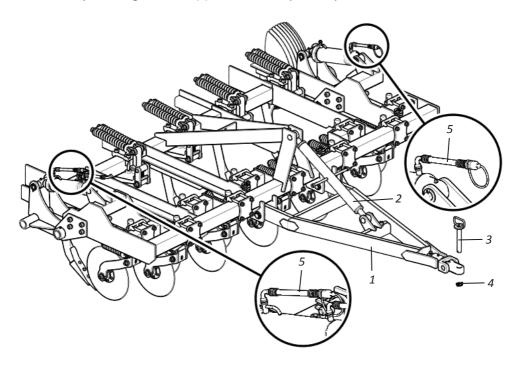
Scarifier Levelling

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

- Before coupling GARRA 300, look for a safe place and with easy access.
- Always use low gear with low acceleration.
- Before turning the hydraulic hoses on and off, stop the engine and relieve the pressure of the circuit by fully operating the control levers.
- Make sure that by relieving system pressure, no one will be injured by moving the equipment.

Observe the instructions above, proceed as follows:

- 01 Level the coupling head (1) of GARRA 300 with the tractor's coupling through regulator (2). Afterwards, Slowly approach the tractor to the GARRA 300 in reverse, being aware when to use the brakes.
- 02 Couple **GARRA 300** to the tractor by attaching it with coupling pin (3), and lock With ring (4).
- 03 Finish by attaching the hoses (5) to the tractor quick coupler.



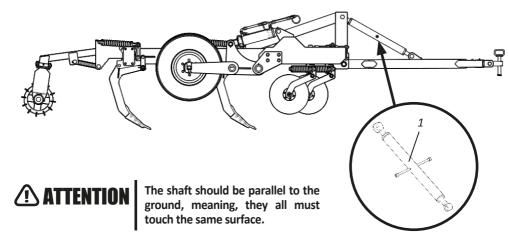


#### Hitch

Scarifier Levelling

To level the GARRA 300, proceed as follows:

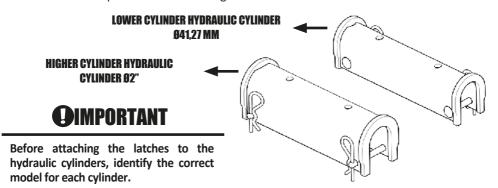
- **01** First, the tractor must be in a flat location.
- 02 Then level the GARRA 300 through the throttle (1).



#### Adjustments

Adjustment for transport - Part V

The **GARRA 300** has two different models of latches to be fixed to the hydraulic cylinders when it is to be transported. The two locking models are:

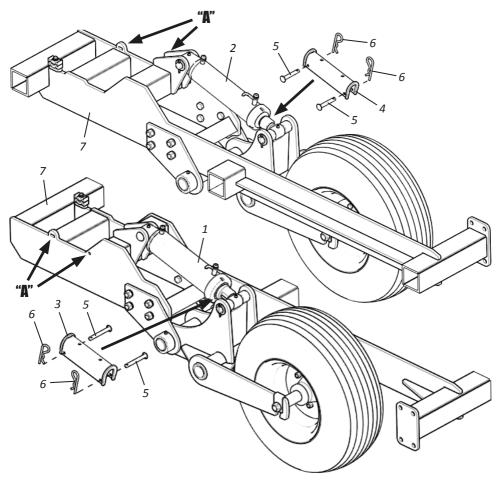


Before starting to transport the **GARRA 300**, check the following page for instructions on securing the clamps to the hydraulic cylinders.



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

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



## **ATTENTION**

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

## **OBSERVATION**

After completing the transport of the GARRA 300, remove the lock (3 and 4) from the hydraulic cylinders (1 and 2) and attach them again to the chassis (7) as shown in detail "A" through the pins (5) and lock (6).

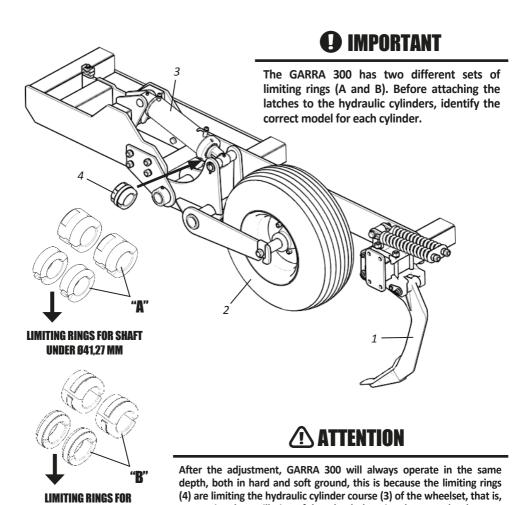


#### Adjustments

#### Shaft Assembly regulation

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

- 01 First, determine the working depth of the shafts (1).
- **02** Then, lift the wheels (2) through the hydraulic cylinders (3) to the specified dimensions, place the limiting rings (4) on the hydraulic cylinder shafts (3).



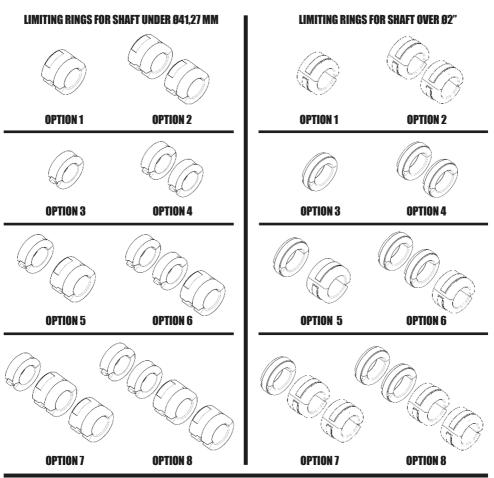
SHAFT OVER 02" preventing the oscillation of the wheels, keeping the same depth.

GARRA 300



#### • Limiting rings combinations

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



#### Adjustments

#### Auto disarm

The automatic disarming system allows the scarifying shafts (1) to disarm when encountering obstacles. To return to the working position, simply lift the scarifier and set the system to re-start again.



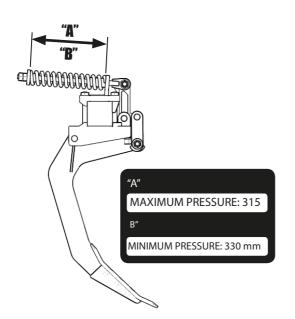
#### Automatic release load setting

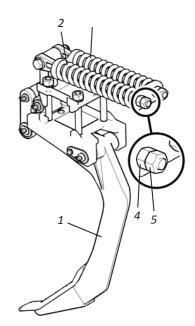
For soils that are free of obstacles such as stones, roots, etc., the pressure regulating springs (2 and 3) must be **330 mm (minimum pressure).** 

To increase the resistance to dismantling of the shaft in obstructed soils, the pressure regulating springs (2 and 3) can be adjusted up to a length of **315 mm (maximum pressure)**.

To regulate the rod disengagement resistance, proceed as follows:

- 01 Turn counter nut (4) and nut (5) clockwise for more Disassembly Resistance.
- 02 Turn counter nut (4) and nut (5) counterclockwise for Less Disassembly Resistance.







Never work with the spring length less than 315 mm, as it may lock the system and damage the scarifier.

When adjusting the shaft disengagement resistance, both springs should be of the same length. Ignoring this warning will cause an overload on one side of the shaft holder to damage it.

# **ATTENTION**

There is no need to carry out further adjustments to the rod disassembly system. If you are disarming, check the soil conditions, which must be very hard or have a high compression rate.

# **OBSERVATION**

For maximum vibration scarifier efficiency, work at the lowest possible pressure, since under normal working conditions you have not disassembled frequently.

GARRA 300 3:

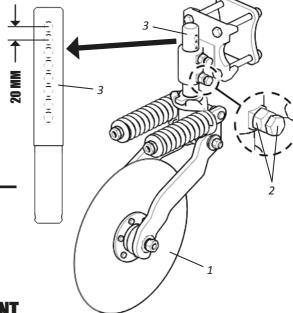


### Adjustments

• Depth adjustment and cutting disc pressure

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

**01** - Loosen the bolts and nuts (2) and move the axle (3) to the desired setting. Then retighten the bolts and nuts (2).



# **OBSERVATION**

Each shaft bore (3) either lowers or raises the disc (1) by 20 mm. When finishing the depth and pressure regulation of the cutting disc, repeat this procedure on all disks.

# **O** IMPORTANT

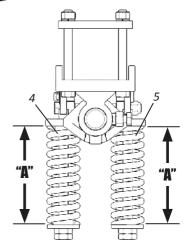
The cutting disk (1) depth and pressure setting must be performed in the field before starting the work, observing the type of soil to be worked for to obtain a better performance of the GARRA 300.

# **ATTENTION**

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

"A" - Ideal work pressure

190 MM

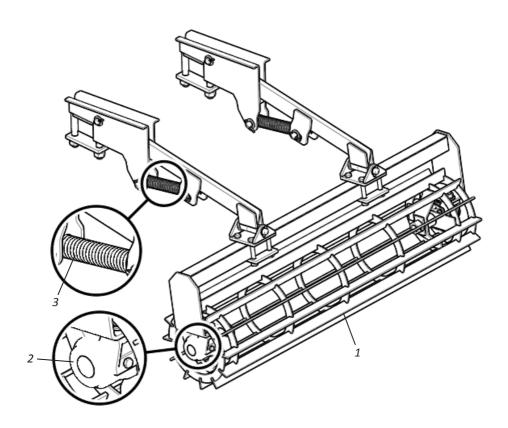




### Operation

#### Harrowing Roller

The **GARRA 300** has a dewatering roller (1) that has the function of reducing the clods and facilitating work of other equipment leaving the soil pre-leveled. The harrowing roller (1) is fitted with oil-bath bearings (2) and helical springs (3).





When operating or even stopped, do not allow people to remain on the GARRA 300, especially on the harrowing roller(1). Ignoring this warning may cause severe accidents and even death.



### Operations

- General Recommendations
- **01** Adjust the tractor according to the content of the instruction manual, always using front and rear weights to stabilize the equipment.
- **02** Always couple to the tractor in low gear and very carefully.
- **03** When using **GARRA 300**, it is important to check the cross leveling and coupling system to be sure that the disks will have the same depth of penetration into the ground.
- **04** After coupling and leveling, the next adjustments will be done directly in the field of work, analyzing the terrain in texture, humidity and the types of operations to be done with **GARRA 300**.
- **05** In the tractor, choose a gear that allows you to maintain some reserve of power, guaranteeing against unforeseen efforts.
- **06** Observe the working and transport speeds specified on page 10. We do not recommend you to exceed the speeds to maintain service efficiency and avoid possible damage to **GARRA 300**.
- **07** Do not decouple any hose without first relieving the circuit pressure by turning the control levers a couple of times with the engine off.
- **08** After the first day of work with **GARRA 300**, tighten again all screws, nuts and check the conditions of pins and locks. Then perform a general retightening on all screws and nuts every 10 hours of work.
- **09** Adjust the tractor according to the content 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 and coupling system to be sure that the shafts will have the same depth of penetration into the ground.
- **11** After coupling and leveling, the next adjustments will be done directly in the field of work, analyzing the terrain in texture, humidity and the types of operations to be done with **GARRA 300**.
- **12** When performing any maintenance on **GARRA 300**, you should lower it to the ground and turn off the engine.
- **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, refer to Post-Sales. Telephone: 0800-152577 / E-mail: posvenda@baldan.com.br

# Baldan Baldan

### **Instruction Manual**

### Operation

#### Scarification

The main function of the **GARRA 300** is to break the compacted layers of the soil to a depth of 25cm. In no-tillage areas, the use of the **GARRA 300** keeps the straw on the ground. This management facilitates the infiltration of water into the soil, as it breaks through the thickened layers that have arisen through the use of other machines.

The factors mentioned above guarantee an effective natural protection of the soil against erosion, allows a better use of the remains of crops, fertilizers and applied herbicides. The soil well constituted in the physical, chemical and biological part, is essential for seed germination and plant growth.

#### Operations Shaft

- **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 deep, and this layer varies from 5 to 15 cm thick.
- **03** Check the depth of the compacted soil layer through a penetrometer or trench and adjust the working depth of the shafts.
- **04** The shafts are equipped with an exclusive automatic dismantling system which, when encountering obstacles, will return to the normal working position by simply raising the scarifier and going backwards (page 37).
- **05** When operating the scarifier, choose a gear that allows you to maintain some reserve of power, guaranteeing against unforeseen efforts.
- **06** When maneuvering, actuate the hydraulic cylinder by lifting the scarifier fully to avoid great stress on the scarifier and overload the traction components.
- **07** In areas of hard penetration or compact areas, the depth of cut of the shafts may be minimal rendering the operation unsatisfactory. In these cases, the application of other more suitable Baldan products is recommended.
- **08** The speed of work varies according to the terrain conditions.

In case of doubts, never operate or handle GARRA 300, refer to 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. The maintenance of general retighten of the equipment must be performed every 10 hours of work

#### Tires pressure

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



# 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 (filling cage). Assemble the tires with proper equipment. The service should only be performed by people qualified to do the work.

# **OBSERVATION**

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 tires should be performed according to the manufacturer's recommendation.



#### Maintenance

#### Lubrication

Lubrication is indispensable for a good performance and greater durability of GARRA 300 moving parts, contributing to the maintenance cost savings.

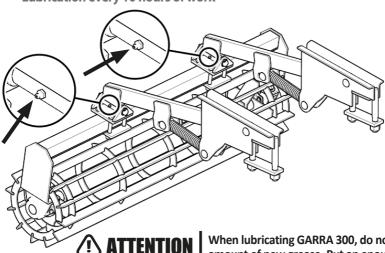
Before starting the operation, carefully lubricate all grease cups, always observing the lubrication intervals in the following pages. Make sure of the lubricant quality regarding its efficiency avoiding products and purity, contaminated by water, dust and other agents.

#### 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

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

Lubrication every 10 hours of work

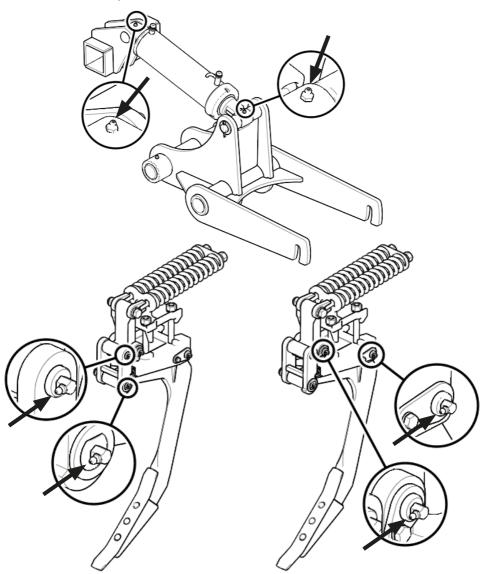


When lubricating GARRA 300, do not exceed the amount of new grease. Put an enough amount.



### **■**Maintenance

• Lubrication every 10 hours of work

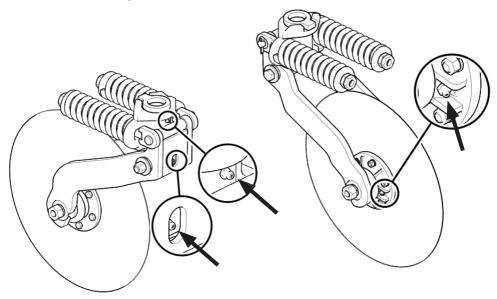


**ATTENTION** When lubricating GARRA 300, do not exceed the amount of new grease. Put an enough amount.

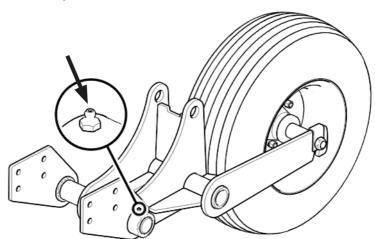


### Maintenance

• Lubrication every 10 hours of work



• Lubrication every 24 hours of work

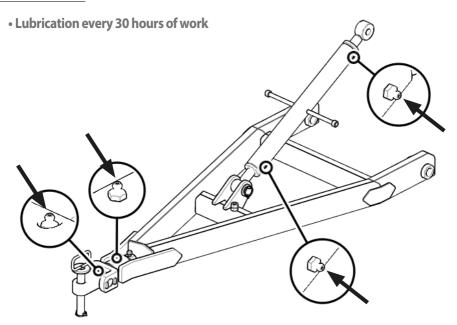




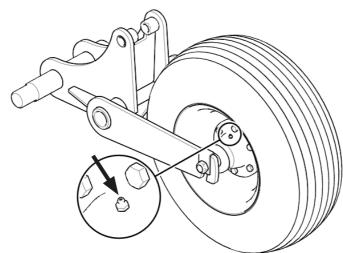
When lubricating GARRA 300, do not exceed the amount of new grease. Put an enough amount.



### **■**Maintenance



• Lubrication every 60 hours of work

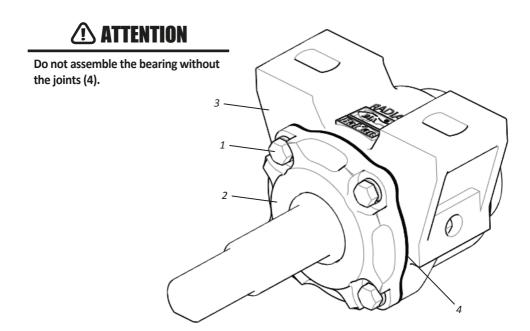


**ATTENTION** When lubricating GARRA 300, do not exceed the amount of new grease. Put an enough amount.



### Maintenance

- Bearings adjustments
- **01-** Next, loosen the screws (1) and remover the bearing (3) cover (2).
- **02** Then, turn one or two joints (4) from the bearing cover (3) Replace the bearing cover (3) and retighten it.
- **03** If the gap remains, the bearing cover (3) can be squared to increase the adjustment, then assemble it on the bearing with as many joints as necessary.
- **04** The bearing should turn freely, with no gaps.



### Bearings oil

In the first days of working with **GARRA 300**, check the oil level of the bearings daily, then check every 120 hours of work.

Oil change should be done every 1200 hours of work. Use transmission oil 90 API GL4, MIL-L-2105; SAEJ306, May/81; SAE 80W, 90 and 140.



The ideal oil level is when it reaches the plug hole. To check the bearing oil level, search for a plain place.



### **■**Maintenance

### • Operational maintenance

Table 1

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
The scarifier is not penetrating the ground	The working position is off the horizontal line.	Adjust the horizontality by adjusting the 3rd point adjuster.
(partially or totally).	Wear nozzles: 1 tip or on 2 tips.	1 tip: invert the position. 2 tips: replace it.
	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.
The scarifier does not move in any direction or	Hydraulic cylinders with damaged repairs.	Replace repairs or replace cylinders.
moves with difficulty.	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 the pipe.
	Damaged repairs.	Replace hubs.
The scarifier moves	Hydraulic cylinders with damaged repairs.	Identify the cylinder and replace the repairs.
without operating the control.	Insufficient tightening.	Retighten carefully.
	Lack of sealing material on the thread.	Use sealing tape and retighten carefully.
	Realization of curves or bolts of very short radius with the scarifier cast in the soil.	When performing these maneuvers remove the shafts from the ground by activating the remote control.
Chassis with cracks or warps.	Automatic assembly does not disassemble.	Adjust the spring pressure according to page 37.
	Excessive tightening of springs.	Adjust the spring pressure according to page 37.
	Bolts of lower quality than required.	Replace for Baldan original parts.



### **■**Maintenance

### • Operational maintenance

Table 1

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Automatic assembly	Shaft roller stuck.	Lubricate with oil or replace.
does not disassemble	Excessive spring grip.	Adjust the spring pressure according to page 37.
	Areas with a high incidence of obstacles such as rocks, stumps, roots, etc.	Reduce speed and/or avoid these areas.
	High compression ratio ground.	Reduce work speed.
Automatic assembly with frequent disassembly.	Tractor power and work speed higher than recommended.	Work within the limits of power and speed recommended by the manufacturer.
	Insufficient spring pressure.	Adjust the spring pressure according to page 37.
	Lever with sharp wear on the roller socket.	Replace lever.
	Impure oil.	Replace oil, repairs and filter element.
Hydraulic cylinder leakage.	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	Lack of sealing material on the thread.	Use sealing tape and retighten carefully.
hydraulic hose	Insufficient tightening.	Retighten carefully.
Quick coupling does not fit.	Couplings of different types.	Change them for males and females of the same type.



### **■**Maintenance

- Precautions
- **01** Before each work, check the condition of all pins, screws, bearings and disks. Where necessary, retighten them.
- **02** The displacement speed should be carefully controlled according to the land's conditions.
- **03 GARRA 300** is used in several applications, requiring knowledge and attention during its handling.
- 04 Only local conditions can determine the best GARRA 300 operation method
- 05 When assembling or disassembling any part of GARRA 300, employ proper methods and tools.
- **06** Observe the lubrication intervals carefully in the various lubrication points of **GARRA 300**.
- **07** Always check if the parts have wears. If there is a need for replacement, always demand Baldan original parts.
- 08 Keep the GARRA 300 tires always calibrated.
- 09 Keep the GARRA 300 disks always sharp.

The proper and periodical maintenance are necessary to guarantee the long life of the scarifier.

# Baldan

### **Instruction Manual**

### Maintenance

- General cleaning
- 1 When storing GARRA 300, perform a general cleaning and thoroughly wash with water only. Make sure the paint has not worn out, if this has happened, give a general coat, apply the protective oil and fully lubricate the GARRA 300.
- 2 Completely lubricate the GARRA 300. Check all moving parts of GARRA 300 if they present wears or gaps, make the required adjustment or replace the parts, leaving the distributor ready for the next work.
- **3** After all maintenance precautions, store the scarifier in a covered and dried location, properly supported.
  - Avoid: That the disks come into direct contact with the ground.
    - The compression of the springs.
    - That the hydraulic hoses be properly capped.
- 4 When connecting or disconnecting the hydraulic hoses, do not let the ends touch the ground. Before connecting the hydraulic hoses, wipe the connections with a clean, lintfree cloth (do not use oakum).
- 5 Replace all adhesives, especially those about warnings, that are damaged or missing.
   Make everyone aware of the importance and risks of accidents when instructions are not followed.
- **6** After all maintenance precautions, store your **GARRA 300** in a plain surface, covered and dried location, away from animals and children.
- 7 We recommend to wash the GARRA 300 with water only on the beginning of works.



Do not use chemical products to wash GARRA 300, it may damage its painting.



### Maintenance

#### Scarifier Conservation - Part I.

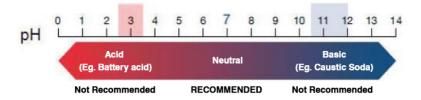
To extend the service life and appearance of **GARRA 300** longer, follow the instructions below:

- **01** Wash and clean all distributor components during and at the end of the work season working.
- **02** Use neutral products to clean **GARRA 300** following the safety and handling guidelines provided by the manufacturer.
- **03** Always carry out maintenance during the periods indicated in this manual.

#### Scarifier Conservation - Part II

The practices and precautions below if adopted by the owner or operator make the difference for the conservation of **GARRA 300**.

- 01 Be careful when performing high-pressure washing; do not direct the water jet directly into the connectors and electrical components. Isolate all electrical components;
- 02 Use only 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 any chemical residues.
- **06 -** Do not use: Detergents with a basic active ingredient (pH less than 7) can damage/ stain the paint on the scarifier.
  - Detergents with acid active ingredient (pH less than 7), act as stripper/remover of zinc coating (the protection of parts against oxidation).



# BIA Baldan

### Instruction Manual

### Maintenance

- Scarifier Conservation Part III
- 07 Allow the machine to dry in the shade so that it does not accumulate water in its components. A very fast drying can cause stains on your paint.
- **08** After drying, lubricate all chains and greases according to the recommendations in the operator's manual.
- 09 Spray all the machine, especially the zinc parts, with protective oil, following the manufacturer's application guidelines. The protective also prevents dirt from adhering to the machine, facilitating subsequent washings.
- 10 Observe curing time (absorption) and application intervals as recommended by the manufacturer.



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



We recommend the following protective oils: - Bardahl: Agro protective 200 or 300

- TWChemical: Zoxol DW Series 4000

Ignoring the conservation measures mentioned above may result in the loss of warranty for painted or zinc-coated components which  $% \left\{ \mathbf{r}_{i}^{\mathbf{r}_{i}}\right\} =\mathbf{r}_{i}^{\mathbf{r}_{i}}$ may exhibit oxidation (rust).



### Identification

### • Identification plate

To consult the parts catalogue or request Baldan technical assistance, always identify the model (1), serial number (2) and manufacture date (3), which can be found on your **GARRA 300 identification label** (4).





The drawings in this Instruction Manual are merely illustrative.



In case of doubts, never operate or handle your equipment without referring to Post-Sales.

Telephone: 0800-152577

email: posvenda@baldan.com.br

# **PUBLICATIONS**

Código: 60550106291 | CPT: GARRA09516





### Identification

Product identification

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

Owner:
Resale:
Revenda:
Farm:
City:
State:
Certificate of Warranty no.:
Implement:
Serial No.:
Date of purchase:
Invoice:



<u>Notes</u>	



• Notes	



**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 performed 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 repair 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 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 the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement:	Serial Number:	
	Fiscal Number:	
Resale:		
	ZIP Code:	
City:	State:	
Owner:		
Phone:		
Address:	Number:	
City:	State	
E-mail:		
Date of sale:		
Signature / Dealer Stamp		



# 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:	Fiscal Number:	
Resaller:		
Telephone:	ZIP Code:	
City:	State:	
Owner:		
Phone:		
Address:	Number:	
City:	State	
E-mail:		
Date of sale:		
Signature / Dealer Stamp _		

2st 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 the user has been informed about the current warranty terms and instructed on the usage maintenance precautions.

Implement:	Serial Number:	
Date:	Fiscal Number:	
Resaller:		
	ZIP Code:	
City:	State:	
Owner:		
	Number:	
City:	State	
E-mail:		
Date of sale:		
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:









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







### Baldan Implementos Agrícolas S/A.

Avenida Baldan, 1500 | Nova Matão CEP: 15993-900 | Matão/SP. | Brasil Phone: +55 (16) 3221-6500 | Fax: (16) 3382-6500

**www.baldan.com.br** sac@baldan.com.br | export@baldan.com.br